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Practical Pharmacy Edition

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Editorial

THE PHARMACIST IN CIVILIAN DEFENSE

WITH the entire country mobilizing for civilian defense in the event of an emergency it is appropriate that pharmacists make a careful study of how they can best serve in the program and, as a result of such study, fit themselves into the work where they can do the most good.

In general, the civilian defense program has three general objectives: (1) the protection of life, (2) the protection of property, and (3) the maintenance of morale. Since England has been face to face with emergency conditions for many long months, it is only natural that the program in this country will be developed along lines which experiences in England have shown to be most effective and efficient. Under other circumstances such a program would have to be built on a theory of what should be done in the event of an emergency but the development of a practical program to meet actual conditions in England provides a pattern for this country to follow.

In considering the first objective of the civilian defense program, the protection of life, the first question which arises is the advisability of making every retail pharmacy in the country a potential first aid station. England has found such a plan inadvisable. The average pharmacy has so much glass in windows, showcases and in bottle stock that it would be a very dangerous spot during an explosion. Furthermore, in most pharmacies the counters, showcases and display tables take up the greater share of the floor space and there is not sufficient room to set up a first aid station. The corner pharmacy has always been considered a first aid depot to which an injured or suddenly ill person can be taken for help, and although it has the space to accommodate one or two such cases at a time, it could not take care of fifty or a hundred sudden casualties. Therefore, retail pharmacies in England are not used as first aid stations and, in all probability, they will not be so used in this country.

Although his pharmacy is not suited for use as a first aid station, the pharmacist himself would make an excellent first aid warden. Those pharmacists who have been graduated during the past few years have had instruction in first aid and all pharmacists, through their knowledge of drugs and medicines and their years of experience in working hand-in-hand with physicians in saving lives, have acquired a calmness and stability under the pressure of responsibility that is a necessary qualification of one who is to render first aid in an emergency. It is advisable that pharmacists, as well as physicians, refresh their knowledge of first aid techniques, however, and in this need the colleges of pharmacy can serve by offering suitable extension courses.

The pharmacist can also serve in the protection of human life by making his pharmacy a supplementary source of supply of such drugs and medicines as would be required in an emergency. It is probable that hospitals will serve as first aid bases and that mobile units will operate from them, but few hospitals have the pharmaceutical staffs or equipment which would be required to manufacture gallons of antiseptic solutions, burn dressings, and other medication in an emergency of considerable proportions. By working with the physicians who will direct the type of treatments which will be used for various types of casualties and

determine the specific forms of medication that will be employed, the pharmacist can prepare himself with proper equipment and stocks of supplies to enable him to prepare specific products in large quantities on a moment's notice. This is the type of preparedness which will count in an emergency.

A second important service of the pharmacist in the civilian defense movement, and one in which he can start functioning immediately, is in the maintenance of public morale. This war, more than any other in history, is a "war of nerves" in which the enemy seeks to win not only through actual combat but also by an insidious undermining of public faith and confidence with false rumors and propaganda.

A concerted defense against such tactics must be planned and one of the best avenues of reaching the public is through the pharmacist. The pharmacist is a highly respected individual in his community. His success in the practice of his profession is a measure of the public's confidence in his knowledge and ability. The community trusts his word. Thus he is a key man in every city, town, and hamlet to dispel false rumors and disseminate truthful information which will inspire confidence. Authorities have estimated that at least one member of every family in the country has occasion to visit a pharmacy once or more every week so it can easily be seen how important is the pharmacist's public contact.

This work can start to-day. The United States is in a period of emergency now in its preparation for defense. The public is being asked to contribute old aluminum. Gasoline stations in the East are being asked to close from 7:00 P.M. to 7:00 A.M. Hardly had these two voluntary programs been launched before there were flying thick and fast that the aluminum was not being used for defense purposes, that although the supply of gasoline along the Atlantic Seaboard was low as a result of tankers loaned to Britain, there were hundreds of tank cars lying idle on railroad sidings. It is in correcting such mistaken ideas that pharmacists can render a vital service to the nation.

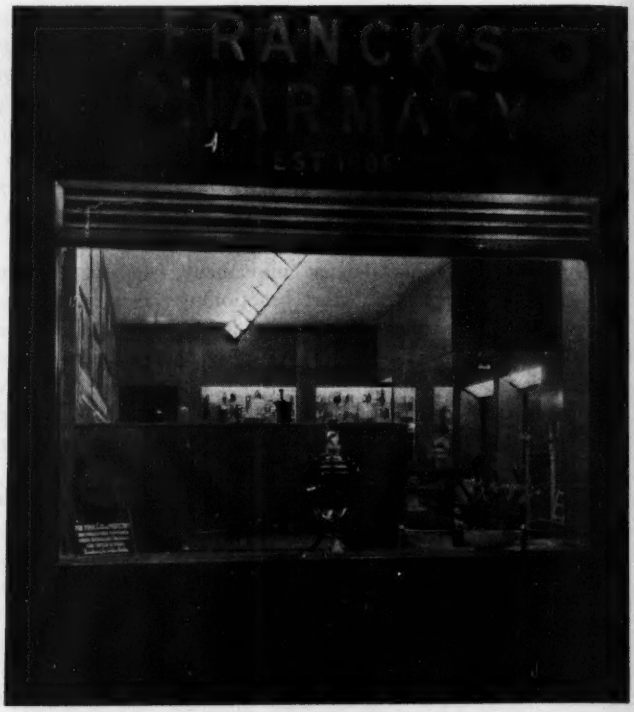
What shall pharmacists do to contribute their services?

The civilian defense movement has a national office which serves to formulate general plans but the actual programs will be developed by state groups. Civilian defense committees have been set up in most, if not all, states at the present time and it is with these groups that state pharmaceutical associations should establish contact in order to insure the full utilization of pharmaceutical facilities and services in such programs as are developed. The state programs will, in turn, be carried out by community units and pharmacists individually should volunteer their services to these groups. The first task of these committees is to study the civilians of their communities and determine how each can best serve the defense program. It is up to the pharmacist to explain the particular forms of service he is in a position to render. This ASSOCIATION has kept in touch with the program as it has developed nationally and a representative of the medical division of the office of civilivan defense will address the Detroit convention.

There is still another important way in which pharmacists can serve the cause of defense, although it is not included among the three objectives of the civilian defense program as such—that is, to work harder than ever in coöperation with physicians to *prevent* sickness during the coming fall and winter.

Preventive medicine is more important right now than ever before in this country's history. It is up to every pharmacist to do his job just a little better this fall and winter, advising customers to seek competent advice for their ailments, and to take adequate precautions against serious illnesses. This is one year in which it is patriotic to be healthy and pharmacists can make a real contribution to defense if they will stress this fact in their contacts with the public.

The windows in Mr. Granito's pharmacy provide a view of the interior and enable the passerby to see the pharmacists at work. No merchandise is displayed in windows; a narrow ledge merely provides space for a showglobe and a few plants.



THE PHARMACY VISION REMODELED

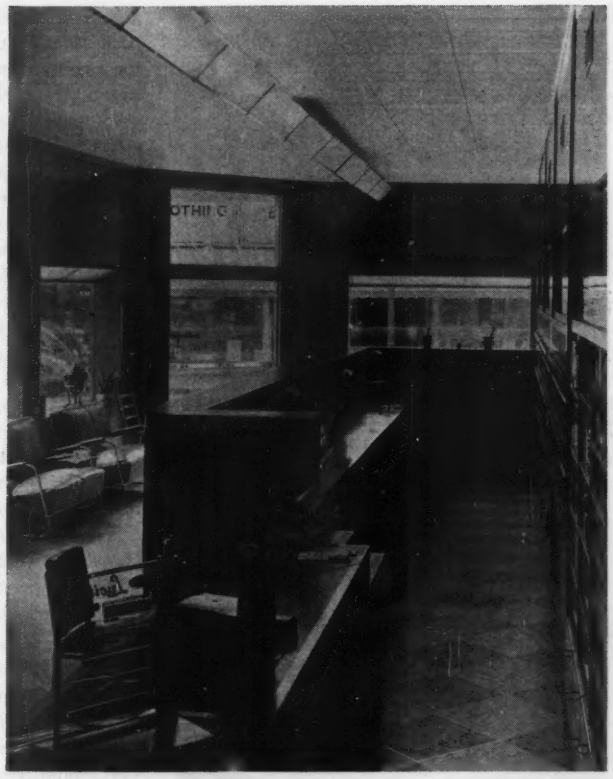
TIRED OF BEING "COOPED UP" IN A BACK ROOM, WEARY OF THE PRESENT-DAY "BATTLE OF WINDOW DISPLAYS," A. R. GRANITO HAS MADE THE PRESCRIPTION DEPARTMENT THE CHIEF FEATURE OF HIS NEW JERSEY PHARMACY

WHEN he first thought of remodeling his pharmacy, A. R. Granito, of Hackensack, N. J., decided that this would be an ideal opportunity to bring his pharmacy "nearer to his heart's desire." Mr. Granito had long dreamed of the type of professional pharmacy he would like to conduct and so he let his vision do the remodeling without conforming to any set rules or guides.

Not to be rushed into a haphazard remodeling program merely for the sake of making a change, Mr. Granito took fifteen months to work out his ideas. He took a loose-leaf notebook, headed one page, "Things I Like in Drug Stores," and headed another, "Things I Dislike in Drug Stores." He thought back over his years as a pharmacist and listed under the first heading *a professional atmosphere.* He felt a pharmacy should radiate its professional character, not keep professional activities hidden in the back room. He liked to be in the open where he could see people and they could see him. He was tired being "cooped up" in a back room or back part of a store, to emerge only to greet and wait on customers. He felt that prescription activities, as the prime reason for a pharmacy, should be highlighted and emphasized.

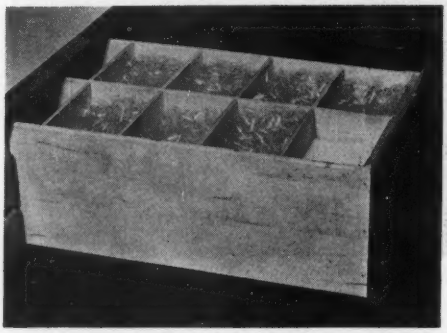
Among his dislikes he listed display windows. They required a lot of time and work in planning

Right: The eye-level prescription counter extends along twenty-six feet of one side of the pharmacy. The counter is divided into three stations, each completely equipped even to telephone. The pharmacist works in bright, clean surroundings instead of being hidden in a dark backroom.

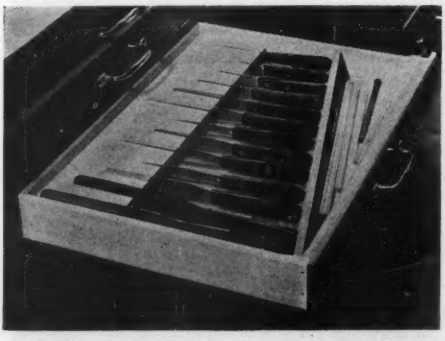


Below: At the rear of the pharmacy is a small waiting counter, toiletry department, drug counter, and telephone booths. Note the display sections over the prescription wall case used for sick room supplies.

Each typewriter is in a drawer beneath the compounding counter. The front of the drawer is hinged so that it may be dropped down after the drawer has been pulled out. This keeps the machine out of the way of the pharmacist, yet it is instantly available for use.



Empty gelatin capsules are kept in bins in a special drawer under the compounding counter. The correct size capsule is right at the pharmacist's fingertips and there is no danger of spilling capsules on the floor.



The spatula drawer is fitted with a slotted board in which the spatulas fit on their sides. The proper utensil is immediately available when needed.

and dressing. . . time he would prefer to spend at professional duties. Principally, he resented these selfsame windows as a medium of comparison: here were his windows—there the cut-raters—compare them. No difference. If he had merchandising windows, the cut-rater also had them; if he installed professional windows, so could the cut-rater. Under this system, pharmacy became a battle of window displays. Mass store displays, while they sold merchandise, went on his list of dislikes too. They sold merchandise, but they contributed nothing to his primary interest: the development of his prescription practice and his professional services. He disliked the usual spatula drawer with its contents thrown in hit-or-miss. He disliked typewriters on the prescription counter where they were always dust catchers and in the way. He disliked a visible trash basket. He disliked separate telephones, necessitating going from one to the other to answer them. He disliked the amount of walking around a pharmacist had to do when he filled a prescription. . . over here for bottles, there for capsules, there for graduates, etc.

Such were the notations on Mr. Granito's list. The next step was to call in architects, one for the exterior and one for the interior. To them he submitted his list, explained what he wanted, and worked closely with them to develop plans that would avoid his "dislikes" and feature his "likes."

On July 2, 1941, the new pharmacy was opened in the presence of civic, professional, and business leaders of the city, county, and state. Those who attended came away with a new picture of pharmacy.

Display windows have been abandoned entirely. In their place are three large, plate-glass windows which give a view of the store interior.

Down for 26 feet of the pharmacy's depth, extends the eye-level prescription counter of gold-combed grain oak. A small section in the rear of the pharmacy is devoted to waiting counter, wall cases of proprietary medicines and toiletries, and telephone booths. Comfortable lounge chairs are provided for the customer who waits for a prescription to be compounded. Upholstered stools at the waiting counter rest the weary shopper. The entire store is air-conditioned and is illuminated by fluorescent lighting. The floor is of diamond-shaped terrazzo in brown and tan. Mr. Granito's desk is placed at the very front of the store.

The exterior is done in wine-colored suede finish Cararra glass with bronze trim. A bronze marquee extends over the doorway and the doors are of glass. A graceful prescription symbol is etched in the glass panel over the doorway.

The prescription compounding counter is divided into three stations, each completely equipped. Among the interesting new ideas which Mr. Granito has developed are the following:

Each typewriter is in a drawer beneath the compounding counter. The front of the drawer is hinged so that it may be dropped down after the drawer has been pulled out. This keeps the machine out of the way of the pharmacist, yet it is instantly available for use.

Empty gelatin capsules are kept in bins in a special drawer under the compounding counter. The correct size capsule is right at the pharmacist's fingertips and there is no danger of spilling capsules on the floor.

Waste baskets are placed in a compartment beneath the counter. The lower three-quarters of the front of the compartment is a door to facilitate removal of the basket, while the top one-quarter is a wooden flap, hinged along the top surface, which responds to fingertip pressure. The pharmacist can deposit a wrapper or box by merely pushing in the top section of the front, and dropping the object into the basket.

The spatula drawer is fitted with a slotted board in which the spatulas fit on their sides.

Each station has its own telephone below the counter and the pharmacy has three incoming lines for calls.

BACK ROOM

The back room of the pharmacy, formerly the prescription room, is used for shelf stock of proprietary remedies and for unpacking orders. The room has a separate exit to the street and thus deliveries of merchandise may be made without disturbing the front area of the pharmacy.

For his new store Mr. Granito has adopted the descriptive phrase, "A Streamlined Old-Fashioned Apothecary Shop," which he has copyrighted. This phrase appears in all of his advertising and also on his prescription labels.

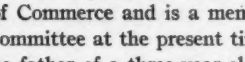
Mr. Granito is vice-president of the National Association of Retail Druggists and has served as president of both the Bergen County and the New Jersey Pharmaceutical Associations. He served four terms as president of the Hackensack Chamber of Commerce and is a member of the executive committee at the present time. He is married, the father of a three-year-old boy, and has been a resident of Hackensack for sixteen years.

AND NOW: SULFACETIMIDE

NEW SULFA DRUG INTRODUCED FOR TREATMENT OF URINARY INFECTIONS AND GONORRHEA

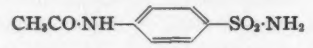
NUMBER 5 on the rapidly lengthening list of sulfonamide drugs which are aiding man's fight against disease in such a spectacular fashion, makes its appearance this month. It is *p*-aminobenzenesulfonylacetylimide, to be known as sulfacetimide, for the treatment of infections of the urinary tract and of gonorrhea.

The chemistry of this new drug is most interesting. Sulfanilamide has the structural formula:

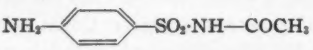


When given orally, sulfanilamide must pass through the liver before it reaches the general circulation. In the liver a part of the drug is combined with acetic acid to form a therapeutically inactive compound of low solubility which is

excreted by way of the kidneys and urine. This process, known as acetylation or conjugation, not only inactivates up to 50 per cent of the sulfanilamide which has been administered, but the poorly-soluble acetyl derivative may precipitate from the urine, block kidney tubules, interfere with normal excretion, and cause damage to urinary organs. When sulfanilamide is acetylated in the human body the acetyl group becomes attached to the amino group and the resulting compound has the formula:



Sulfacetimide is a product of the acetylation of sulfanilamide, but in the laboratory it is possible to attach the acetyl group to the amino group attached to the SO_2 group instead of the amino group attached directly to the benzene ring in the para position, and the resulting compound has the formula:



This acetylated derivative, far from being inactive, is a well-tolerated, therapeutically effective drug.

Sulfacetimide reaches this country from England where it has been in use for some time under the name Albucid. Among the first published clinical reports on the compound was an article in *Lancet* last February written by Dr. R. Marinkovitch, Director of the City of Salford Venereal Disease Centre and Instructor in Venereal Disease at the Victoria University of Manchester. Dr. Marinkovitch administered the drug to 100 male gonorrhea cases. In 25 per cent of the cases smears were negative on the second day; in 61 per cent of the cases smears were negative on the third day; in 12 per cent of the cases smears were negative on the fourth day; and in the remaining 2 per cent of the cases smears were negative on the fifth day. A total cure-rate of 91 per cent was achieved.

He found it more readily absorbed than other sulfonamides, a higher concentration in the blood was achieved by the same dosage as was usually given of other sulfonamides, and a higher proportion of the drug was eliminated in unconjugated form. He found it well tolerated: only one case in the 100 developed a morbilliform eruption of the skin that lasted 24 hours; no cases showed fever, nausea, or headaches.

At Johns Hopkins University, Baltimore, "cradle of the sulfonamides," the drug has been given extensive trial at the James Buchanan Brady Urological Institute. Drs. Young, Hill, Jewett, and Satterthwaite, in the *Journal of Urology* for June 1941, reported striking results, *in vitro*, on *Staphylococcus aureus*, *Gamma Streptococcus fecalis*, *Echerichia*, *Aerobacter*, and *Proteus*, all of which are important organisms in urinary infections. They used it clinically on 105 cases of gonorrhea, chronic urethritis, and miscellaneous urinary tract infections and found it effective with no cases of leukopenia and no urinary suppression. Doses of 4 Gm. a day produced no headaches or general malaise but doses of more than 6 Gm. produced some reactions.

Drs. Welebir and Barnes, of Los Angeles, reported to the recent Cleveland meeting of the American Medical Association that they had used sulfacetimide in 200 cases of bacillary urinary tract infections and found it superior to other sulfonamides. They reported 85.5 per cent of their patients were cured and 12.5 per cent showed improvement; 80.9 per cent of the cases which had resisted treatment with sulfanilamide were cured with sulfacetimide; 73.3 per cent of mandelate-resistant cases were cured; and 100 per cent of the sulfathiazole-resistant cases were cured.

Sulfacetimide is available[1] in the form of a white, crystalline powder; odorless; slightly acid taste; melting point, 181°–182° C.; solubility at room temperature, 1 in 100. It is offered in 0.5-Gm. tablets. In urinary tract infections 4 Gm. per day are given for the first 3 days, 3 Gm. per day for the second 3 days and 2 Gm. per day for 4 days. Each of the daily doses should be divided into four parts. In acute gonorrhea, 4.5 Gm. are given daily for 7 days.

Thus the parent compound sulfanilamide, which has already supplied new therapeutic agents for the treatment of streptococcic, pneumococcic, and staphylococcic infections and of bacillary dysentery, now provides a new drug for the treatment of difficult urinary infections. Mandelic acid and other drugs, although contributing to the treatment of these infections, have left much to be desired. Perhaps sulfacetimide is the answer—thousands of sufferers from these infections hope so.

[1] Available under the trade name *Sulamyd* from the Schering Corporation, Bloomfield, N. J.

ISOTONIC, BUFFERED, PRESERVED
INTRANASAL EPHEDRINE SOLUTIONS

NEW STUDY IS FIRST STEP IN PLACING SUCH PREPARATIONS ON A PRACTICAL BASIS BY ELIMINATING NECESSITY FOR CALCULATIONS AND CHECKING ON THE PART OF PHARMACIST

IT takes considerable calculation to prepare an isotonic, buffered nasal spray—and considerable laboratory work to check the accuracy of the calculations. Until such time as exact formulas are developed for all medicaments commonly used in such preparations, so that the pharmacist does not need to calculate tonicity factors and determine p_H values, these solutions will probably never be used as extensively as their value merits.

L. Arrigoni, of the College of Pharmacy, University of Washington, and G. A. Tozer, prescription pharmacist in Everett, Washington, have made the first step toward placing these preparations on a practical basis for prescription use. They have undertaken the work of calculating and experimentally checking formulas for ½, 1 and 2 per cent ephedrine sulfate solutions and offer pharmacists the fruit of their labor. The formulas, published in the Scientific Edition of THIS JOURNAL for July, are as follows:

0.5 PER CENT SOLUTION

Ephedrine sulfate	0.5 Gm.
Potassium phosphate, monobasic	0.5 Gm.
Sodium phosphate, dibasic	0.5 Gm.
Potassium chloride	0.15 Gm.
Sodium chloride	0.15 Gm.
Dextrose, anhydrous	0.9969 Gm.
Preserved water, *q. s.*	100.00 cc.

1 PER CENT SOLUTION

Ephedrine sulfate	1.0 Gm.
Potassium phosphate, monobasic	0.5 Gm.
Sodium phosphate, dibasic	0.5 Gm.
Potassium chloride	0.15 Gm.
Sodium chloride	0.15 Gm.
Dextrose, anhydrous	0.7867 Gm.
Preserved water, *q. s.*	100.00 cc.

2 PER CENT SOLUTION

Ephedrine sulfate	2.0 Gm.
Potassium phosphate, monobasic	0.5 Gm.
Sodium phosphate, dibasic	0.5 Gm.
Potassium chloride	0.15 Gm.
Sodium chloride	0.15 Gm.
Dextrose	0.3663 Gm.
Preserved water, *q. s.*	100.00 cc.

The preserved water consists of 0.04 per cent of a combination of 65 parts of methyl *p*-hydroxybenzoate and 35 parts of propyl *p*-hydroxybenzoate in distilled water.

Arrigoni and Tozer state that the ideal vasoconstrictive nasal preparation should meet the following specifications.

1. It should contain an effective vasoconstrictor in aqueous solution. Ephedrine sulfate was chosen because it has marked vasoconstrictive properties, is stable in aqueous solution, and is readily obtainable. An aqueous solution is preferred over an oily solution to eliminate the interference with ciliary rhythm, interstitial fibrosis, giant cell formation and lipoid pneumonia which may follow the use of oily nasal preparations.

2. Its tonicity should approximate that of the blood stream. Such an isotonic solution is less irritating and favors the absorption of the vasoconstrictor.

3. It should be buffered to a p_H level consistent with comfort and the effective treatment of inflammations of the nasal mucosa. The p_H of nasal secretion is approximately 7.2 and solutions within a range of 6.0 to 7.6 are considered nonirritating. Since nasal and sinus secretions of patients afflicted with colds tend to become more strongly alkaline than normal, and it has been suggested that inflammation and congestion of the nasal passages may be relieved most effectively by acidification, the p_H of the nasal solution is adjusted to 6.7.

4. It should be adequately preserved. A 0.04 per cent solution of a combination of 65 parts of methyl *p*-hydroxy benzoate and 35 parts of propyl *p*-hydroxy benzoate is used because it has proved effective and produces no irritation.

MORE ACCEPTABLE, MORE EFFECTIVE OINTMENTS BY EMULSIFICATION

SODIUM LAURYL SULFATE AND CETYL ALCOHOL MAKE WATER SOLUBLE OINTMENTS THAT ARE PLEASING TO PATIENT AND ARE MORE EFFECTIVE

OINTMENTS made with benzoinated lard, petrolatum, lanolin, or combinations of such vehicles are obnoxious to the patient, particularly the feminine patient. They are greasy to the touch, they are conspicuous when applied, they stain wearing apparel, and they are difficult to remove from the skin. Cosmetically they are most unacceptable and although it is true that ointments are prescribed for the treatment of skin disorders and not to make the patient more attractive, the modern woman will not use a repulsive preparation if she can help it. The result is that physicians receive very poor coöperation from patients in the use of ointments. The patient has her prescription filled, uses the ointment once or twice and then tries to get along without it.

Dermatologists know this to be true and they realize that if their patients are to be expected to use regularly and faithfully the ointments they prescribe, these preparations must be improved to make them more acceptable esthetically.

But dermatologists have other more serious complaints against greasy ointments.

They know that a greasy ointment interferes with the radiation of heat from the area to which it is applied and, therefore, should not be used in acute inflammatory conditions of the skin.

They know that such ointment bases as petrolatum and lanolin form a barrier between the medication and the serous discharge of the lesion instead of serving as a medium through which the therapeutic agent could reach the skin.

They know that recent studies have shown that bacteriostatic or bacteriocidal agents are more effective when prepared in a non-greasy base. Using *Staphylococcus aureus* as a test organism, various authors have tested ointments of mercury and phenol, made with greasy bases and water-soluble bases, and have reported that those made with water-soluble bases are as much as three times more effective.

A. J. Gibson, H. E. Parker, and A. Almus of the Health Service Pharmacy, University of Michigan, studying the matter further, have tested ointments made with greasy and water-soluble bases on *Microsporon lanosum*, commonly present in seborrhœa of the scalp, and *Trichophyton gypseum*, one of the fungi responsible for tinea or ringworm infections of the hands and feet. Using combinations of sulfur with salicylic acid, and salicylic acid with benzoic acid, two formulas prescribed at the University of Michigan Health Service for such infections, they found the ointments made with a water-soluble base to be distinctly superior. The sulfur and salicylic acid ointment made with the U. S. P. base produced no zone of growth inhibition in a culture of *Microsporon lanosum* after seven days of incubation, while the same ointment made with a water-soluble base produced a zone of 19 mm. The salicylic acid-benzoic acid ointment made with the U. S. P. base produced a zone of growth inhibition of 14 mm. in *Trichophyton gypseum*, while the same ointment made with a water-soluble base produced a zone of 25 mm.

A SUITABLE BASE

A study of the literature convinced the Michigan pharmacists that their objective was an emulsifier that would meet the following qualifications:

1. Would produce oil-in-water emulsions.
2. Would produce emulsions that are stable to most medicaments the pharmacist might be called on to incorporate in such a preparation.

3. Would be economical to use; the finished preparation to compare favorably in price with one made with petrolatum.

4. Would permit the use of at least a 50 per cent water concentration, otherwise the preparation would be nearly as greasy as petrolatum.

5. Would lend itself to both extemporaneous and stock preparation of emulsified ointments.

6. Would be readily available.

Their investigations indicated that a mixture of one-half per cent sodium lauryl sulfate and 8 per cent cetyl alcohol fulfils these conditions. Cetyl alcohol in itself is not a strong enough emulsifying agent for general use; it requires the use of a booster or auxiliary agent and sodium lauryl sulfate is not only compatible, but in itself is an outstanding emulsifier.

The formula developed for the emulsified ointment was as follows:

	Per Cent
Sodium lauryl sulfate	0.5
Cetyl alcohol	8.0
Roba	6.5
Petrolatum Alba	20.0
Water	65.0

(Roba was tried as an inexpensive substitute for cocoa butter. It is made by Procter and Gamble. Emulsions are equally good without it, however, and so it may be omitted from the formula and petrolatum substituted if desired.)

In preparing extemporaneous ointment emulsions, it has been a time-saving element to have the base prepared beforehand. This consists of the cetyl alcohol petrolatum and roba previously melted in a suitable container over a water bath, the sodium lauryl sulfate then added and the whole stirred until cool.

As calls are received, the water is determined arbitrarily at a fifty per cent ratio of the weight of the preparation to be made. The percentages of medicaments are then weighed out. The combined weight of water and medication subtracted from the total gives the desired amount of base to use. The base and medication are worked together on an ointment plate, the water previously warmed is added by degrees until a smooth cream results. For extemporaneous work it is obvious that the per cent of base will vary with the per cent of medication called for. Dependent on this factor, the amount of sodium lauryl sulfate and cetyl alcohol will vary slightly from the fixed ratio of one-half and eight per cent. Water content has been retained at a fifty per cent ratio in ointment emulsions in which medication is added. There is no reason other than that this water ratio is a convenient amount to work with and gives satisfactory results. The following chemicals have been incorporated in this emulsion system, either separately, or combined in varying percentages:

Salicylic acid 3 per cent with Benzoic acid 6 per cent.

Juniper tar (Oil of cade) 10 per cent with Salicylic acid 3 per cent.

Coal tar 5 per cent.

Kaolin 10 per cent with Sulfur precipitated 10 per cent.

Ammoniated mercury 5 per cent and 10 per cent.

Sulfur precipitated 10 per cent.

Phenol 2 per cent.

Sulfathiazole 1 per cent.

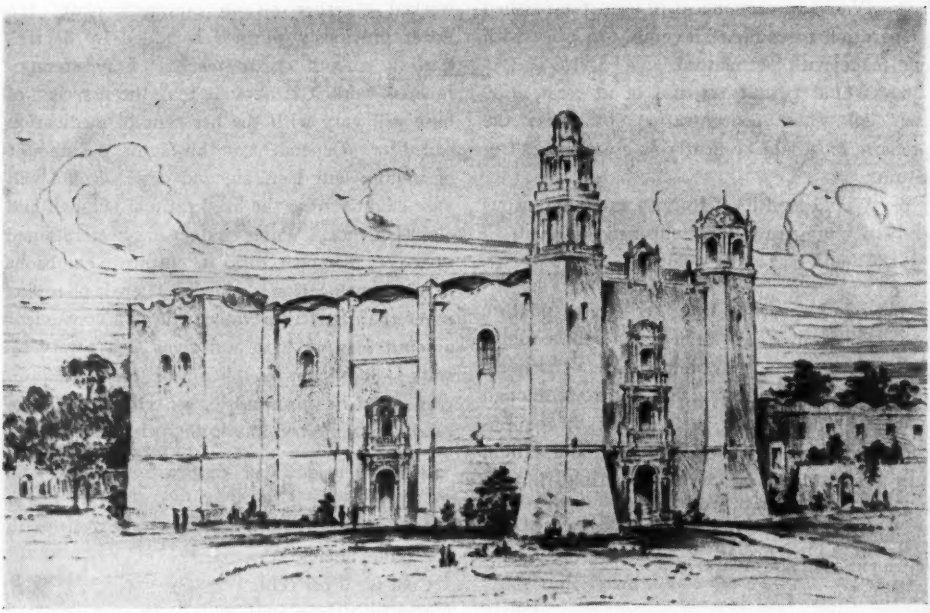
Balsam Peru 10 per cent with Sulfur precipitated 10 per cent.

Salicylic acid 2 per cent with Sulfur precipitated 5 per cent.

Calamine 8 per cent.

Pharmacists should consider carefully the various suggestions that have been made during the past few years concerning the use of water-soluble ointment bases of various types. A tremendous amount of research has been done on these preparations and the pharmacist should place the information so gained at the disposal of physicians in his community. The progressive pharmacist is constantly seeking ways and means of improving the quality, appearance, and effectiveness of the medication he dispenses and he makes the fullest possible use of such developments as bentonite, pectin, water-soluble ointment bases, and new emulsifiers.

—Jour. A. Ph. A. (Sc. Ed.), 30, 7 (July 1941), 196–200



The College of Santa Cruz where the Formulary was written in 1552.

BADIANUS MANUSCRIPT DESCRIBES NATIVE DRUGS OF EARLY MEXICO

by RICHARD A. DENO, Ph.D.

ASSOCIATE PROFESSOR OF BIOLOGICAL SCIENCES, RUTGERS UNIVERSITY COLLEGE OF PHARMACY

HIDDEN UNTIL BUT TEN YEARS AGO, THIS TRULY AMERICAN FORMULARY TELLS A FASCINATING STORY OF THE TREATMENT OF DISEASE BY INDIANS OF THE NEW WORLD NEARLY FOUR HUNDRED YEARS AGO

THE early colonists of the United States were impressed with the wealth of plant material available in the New World for food and medicinal purposes. In their messages to Europe are frequent references to new drug plants. Naturally, such references show the influence of the European training of the writers and this influence is reflected also in the regional formularies which preceded the first United States Pharmacopœia, and in the early pharmacopœias themselves. Our pharmaceutical literature, therefore, has never contained a purely American Pharmacopœia.

A comparable situation prevailed in our neighbor republic of Mexico. Cortez reported not only the mineral wealth of Mexico but he was deeply impressed by the possibilities of the flora and fauna of New Spain. It is not surprising to find Spanish scholars, contemporary with the Conquest, writing on the medicinal plants of Mexico. One of the earliest was the Franciscan monk, Bernardino de Sahagún, who came to the New World in 1529, learned the Aztec tongue and taught in various mission schools. For over fifty years he studied the history of Mexico, and

in the works of Sahagún, published long after his death, are frequent references to medicine. A second notable Spanish contribution to Mexican materia medica is contained in the extensive writings of Doctor Francisco Hernandez who spent seven years in Mexico collecting and studying native plants. But they, and others who followed them, were not Mexicans. Sahagún's writings show little European influence because he worked painstakingly to secure only authentic Indian data. Nevertheless, no purely native pharmacopœia was known until the discovery ten years ago of the Badianus Manuscript in the Vatican library.

HIDDEN FOR CENTURIES

Hidden for nearly four centuries, this truly American Pharmacopœia has been reproduced in its entirety, together with a thorough discussion of its historical background.[1] This, together with the English translation of the Latin text and extensive notes and comments, is the careful work of Dr. Emily Emmart. The original manuscript, published in 1552, is the work of two Aztec authors of the College of Santa Cruz, Martinus de la Cruz, an Indian physician of the college, who wrote the original manuscript in Aztec, and Juannes Badianus, who translated it into Latin. The College of Santa Cruz was the first college established for the Indians in the New World. It was founded in what is now Mexico City; it flourished and then declined during the latter two-thirds of the sixteenth century. Most of the buildings of the college were razed nearly a century ago, and the one remaining, now partly in ruins, is a part of the Military Prison of Santiago.

The botanical illustrations of the Badianus Manuscript, reproduced beautifully in the transcription, are of particular interest to the pharmacist, artist and historian. Regardless of the dimensions of the plant, the illustrations are all of about equal size. A further conformity is found in the drawings of the roots. In many illustrations Aztec symbols are included to give ecological information. For example, aquatic or semi-aquatic plants are shown against a blue background, and if the habitat was a stream the Aztec water symbol is appended. In several instances the Indian stone symbol is found within the roots, indicating the type of soil in which the plant flourished. In one or two illustrations ants are shown about the roots, suggesting the proximity of the plant to ant-hills. Even so intimate a relationship as parasitism of a fly upon a tree is indicated, and the biology of this illustration holds true to-day. Many Aztec symbols are widely used in Mexico at the present time as decorative designs. In the silver shops of Taxco can be found jewelry fashioned after the pattern of the Aztec stone symbol used in the Badianus Manuscript.

[1] **The Badianus Manuscript. An Aztec Herbal of 1552. Introduction, Translation, and Annotations by Emily Walcott Emmart. xxiv + 341. The Johns Hopkins Press, Baltimore. $7.50.**

INDIAN MATERIA MEDICA

The materia medica of the herbal runs the entire gauntlet from obvious mysticism to enlightenment characteristic of the most modern medical books. In some instances the text of the Aztec herbal rivals the pharmacopœias of medieval Europe, and in others remedies are listed which may be found in the United States Pharmacopœia or the National Formulary of to-day. The manuscript includes drugs of animal, mineral and vegetable origin. Blood, bile, brains, and ash of various animals are included frequently, and calcareous concretions (bezoar stones) from the visceral organs of widely diverse animals were considered to be especially valuable. Inorganic minerals were also widely used. Precious and semi-precious stones, various types of earths and common salt are found in the recipes. In some instances the crystalline stones were to be worn outside the body as charms. In other cases they were added to plant drugs and the whole macerated with such solvents as water, urine, or pulque.

PULQUE

The use of pulque as a solvent in pharmaceutical preparations is peculiar to Mexico and corresponds to the household practice of using wine to dissolve medicinals, common in Europe and to a lesser extent in America. Pulque is an alcoholic liquor which looks like watered milk and has about the same potency as strong beer. It has been known for centuries in Mexico, countless Aztec gods were tutelary to it and to-day in many districts it is the favorite drink of the peon.

"Don't you know pulque
Is liquor divine?
Angels in heaven
Prefer it to wine."

The beverage is secured from the Maguey, the generic name of over thirty species of a magnificent plant related to Aloe, but commonly termed a cactus. No vegetable product indigenous to Mexico is as imposing or as useful as the Maguey. It matures at the proper altitude, around seven thousand feet, in ten years or less, at which time its leaves may be ten feet long, a foot wide and nearly a foot thick. In the southern states of our country the Maguey matures more slowly and because its crowning effort of flowering occurs only at maturity, the Maguey here is commonly called the "Century Plant." South of the border its leaves are used to construct houses; from their fiber the Indians make thread, twine, and rope; the pulp furnishes vinegar, molasses, and paper; the thorns provide a natural needle; and, besides pulque, two gin-like beverages, tequila and mescal, are obtained from the Maguey. From the thread and twine are made cloth, shoes, bags, baskets, and countless other articles. The plant is truly shelter, clothing, and drink to the Mexican—and even food, for a larval insect parasitic thereon is collected, fried, and eaten as a delicacy.

Pulque is made from the sap of the Maguey. As it approaches maturity the central floral stalk is cut out, leaving a hollow in the heart in which the sweet sap collects. From one to two gallons of this are gathered daily for weeks, after which the plant dies. The sap is allowed to ferment, this being hastened by the addition of mother-pulque. In a day or so the pulque of commerce is ready. Almost all of this is consumed as a beverage, very liberally in some instances, but a small quantity is still used as a household vehicle for medicinals.

WIDE VARIETY OF PLANTS

The unusual variety of medicinal plants known to the Aztecs is a reflection of the extreme diversity of climatic conditions to be found in their country. In Mexico climate is not a matter of distance from the equator but instead is dependent upon the altitude. Within a relatively short drive one can go from the tropics with profuse and typical vegetation, through temperate regions with characteristic flora, to high mountainous territory. Each of these districts contributed plants to the Aztec materia medica, as did the desert regions and aquatic habitats. Taxonomically the range of the medicinal flora extended from small creeping plants to large trees. The botanical nomenclature of the Aztecs frequently was derived from adjectives descriptive of the plants, their ecology or habitat. One of the noteworthy contributions of the translator has been her careful study of these names, many of which are found in the Badianus Manuscript for the first time. She has given the etymology of each, together with valuable comments and data.

The diseases mentioned in the herbal cover a wide field, and some of the most frequently mentioned are common in Mexico to-day. Several types of skin diseases are discussed, and from superficial observation one would assume that competent dermatologists would find much to do in modern Mexico. Eye defects of various types are also included, and, again, to-day's Indians and mestizos frequently show signs of eye infections, in some instances partial or total blindness. Some of this is from faulty nutrition, and in other cases the condition appears to be due to infection. The usual organic diseases are mentioned, as are fever, burns and parturition. A most interesting remedy is offered "for the fatigue of those administering the government and holding public office." The sagacity of the Aztecs in recognizing fatigue as a condition requiring medical treatment is characteristic of the high native development of the race.

MODERN RESEARCH STUDIES

The chief interest of this materia medica is, of course, historical. Yet one cannot help wondering what might be learned if some of the plants contained in the long list of Aztec drugs were subjected to modern pharmaceutical, chemical and pharmacological research. Very little work of this sort has been done on native Mexican plants, but a start has been made in the excellent laboratories of Dr. G. G. Colin in Mexico City. Supported largely through the manufacture and sale of vaccines, which are used extensively in Mexico, for seventeen years this laboratory has been devoted to the study of native plants. Some of these have been proved to be valueless. From others about a dozen pharmaceutical specialties have been developed and are being prescribed by Mexican physicians. One of particular interest, Fitocalcium, is a plant calcium derived from a species of cactus and useful wherever calcium therapy is indicated. In addition to

cactus there are three other genera common to the Aztec herbal and to the research program of the Colin laboratories.

DRUGS CULTIVATED

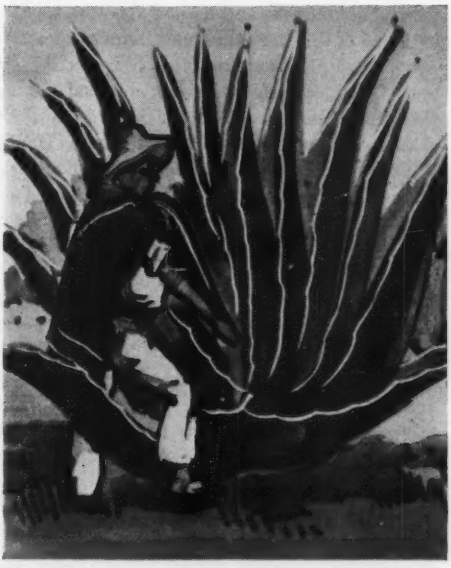
The Aztecs did not depend solely on nature as a source for medicinal plants. Long before the Conquest extensive gardens were cultivated which included not only flowers and vegetables but many drug plants. Upon the lakes surrounding their capital (now Mexico City) floating gardens planted on rafts were common, especially in the lagoon at Xochimilco. Islands of made land developed from these, anchored by a network of roots. To-day the gardens of Xochimilco supply the flowers and vegetables for most of the markets of Mexico City, and are a beautiful recreation park as well.

Many other famous gardens and innumerable small ones were in existence at the time of the Conquest. One of the most extensive was that maintained by the Aztec ruler Montezuma at Huaxtepec, about fifty miles south of the capital in what is now the state of Morelos. Cortez was impressed tremendously by this garden and reported its circumference as being two leagues (about five miles). Hernandez spent much of his seven years in Mexico at Huaxtepec and described many of its plants. Montezuma's garden is believed to have supplied many of the herb medicines used by the Aztecs. Shortly after the Conquest a convent was established at this beautiful spot.

HUAXTEPEC TO-DAY

To-day Huaxtepec is a small village not readily accessible to visitors and with scant remains of the beautiful garden which flourished there over four centuries ago. However, the town is richer in trees than many of its neighboring villages, and a half-hour's walk from the ancient buildings is a grove which is pointed out as the remains of the garden of Montezuma. The convent is mostly in ruins, the old church being inhabited by cows and chickens. The convent building illustrated in the Badianus Manuscript is now used as a rural school. The corridors surrounding the patio serve as a dormitory for some eighty students who use the other rooms for study and recreation. From the roof of this building can be had a marvelous view of the countryside, and there still remain unmistakable signs of the former semi-tropical beauty of Huaxtepec in the tangled plant growth and many streams which surround the village.

To appreciate the scholarly manner in which Dr. Emmart has translated the herbal of Martinus de la Cruz and Juannes Badianus one must read the book in its entirety. The translation of the Latin text was doubtless relatively simple, but her adequate information on the historical background and her enlightening comments on the Aztec nomenclature show an insight that could have been gained only by much careful research. The value of the volume is increased tremendously by the several indices, covering Aztec names, modern botanical equivalents, zoölogical contents, mineral contents, materia medica, and the diseases treated; and by the excellent bibliography. The library of no college of pharmacy should be without this book, and the generous support of various organizations and individuals has made it available to those who are interested in the history of American pharmacy.



The Maguey, from which pulque is prepared, is the generic name of over thirty species of a cactus-like plant. It is a favorite subject for jewelry, paintings, and other souvenir objects as the above reproduction from a Tile indicates.

LATEST LIST OF
U. S. P. ADDITIONS AND DELETIONS

REVISION COMMITTEE ANNOUNCES TENTATIVE APPROVAL OF 194 NEW ITEMS AND THE DELETION OF 86 ITEMS FOR NEXT EDITION

ONE hundred and ninety-four new items have been approved for admission to the U. S. P. XII by the Sub-Committee on Scope and eighty-six items are scheduled for deletion, according to the latest list issued by the Committee of Revision. The list is only tentative, however, and may be revised before the new edition is published. Some of the items scheduled for admission are trademarked items which may not be available in view of the U. S. P. policy of including such items only if they have been dedicated to the public. Among the trademarked items which have been proposed for admission are Benzedrine, Bismarsen, Butesin, Dilandid, Dilantin Sodium, Salyrgan, Hexylresorcinol, Mapharsen, Pentothal Sodium, Atabrine, Insulin and Avertin.

Some of the interesting new items proposed for the U. S. P. XII are Hydrated Alumina, Absorbent Gauze, Gauze Bandage, Normal Human Blood, Menadione (Vitamin K activity), Eye Disks of Homatropine, Human Serum, Halibut Liver Oil, Radium, Sulfapyridine, Sulfathiazole and Absorption Base Type Ointment.

Several hormone products are scheduled for insertion, including Estrone, Progesterone and Testosterone Proprionate.

Forty-one of the new items which have been approved by the Sub-Committee on Scope are products which were official in N. F. VI or had been approved for admission to N. F. VII. These include numerous tablets and ampuls, Elixir of Phenobarbital, Cudbear, Ringer's Solution, Potassium Chloride, Elixir of Thiamine Hydrochloride and Bentonite.

DELETIONS

In announcing the deletion of 86 items, the Committee appended a statement voluntarily prepared by one of its medical members to indicate his understanding of the reasons why certain of the products were deleted. His explanatory statement is as follows:

Acetyltannic Acid and Albumin Tannate—Have not proved efficient as intestinal astringents. There is evidence that high up in the small intestines the tannic acid is changed to sodium gallate, which is not astringent. Neither tannic acid nor gallic acid appears in the feces. Any astringent action is likely to be exerted in the stomach or duodenum rather than in the intestines lower down.

Aconite, Tincture of Aconite—In fever it has been supplanted by strikingly better remedies. As a vagus stimulant it is not employed, probably because of its lack of certainty, or its lack of safety in the necessary doses.

Acriflavine and Acriflavine Hydrochloride—It was employed extensively in World War I, but since that time its use has steadily declined. It is bacteriostatic rather than bactericidal. Recommended to replace iodine as an application to the skin in preparation for operation, it has been refused acceptance by many surgeons. Similarly in infectious and ulcerative conditions of mouth, bladder, vagina, and rectum, its use has steadily declined. The Sub-Committee on Surgical Infections of the National Research Council has repudiated it on the ground that it is ineffective in the treatment of wounds.

Ammonium Benzoate, Bromide, and Salicylate have been used in the fallacious belief that the ammonium radicle is in some way protective to the heart. Ammonium salts are less stable and unnecessary duplicates of the corresponding salts of potassium and sodium.

Aromatic Sulfuric Acid—Formerly used extensively as a solvent for quinine sulfate, and now obsolete.

Arsenic Triiodide—Undesirable to administer both arsenic and iodine in a fixed salt of this type.

Asafetida, Emulsion of Asafetida—Its value in hysterical conditions is questionable. Its use by mouth for flatulency is not justified by results. Its use by rectum in tympanites can be duplicated by pleasanter smelling and more effective agents.

Bismuth Subgallate—It has no advantages over the subcarbonate. Because of the presence of gallic acid, it has produced the erroneous idea that it is astringent.

Calcium Bromide—An unnecessary duplicate with no therapeutic advantages over other bromides.

Calcium creosotate, creosote, creosote carbonate, guaiacol, and other creosote relatives are neither antiseptic in the respiratory tract nor expectorant. The local antiseptic value of creosote in a tooth cavity and its deodorizing value in pulmonary tuberculosis were not considered justification for its continuation in the Pharmacopœia.

Cannabis, Fluidextract of Cannabis, Extract of Cannabis—A little-used drug, very variable, and with the easily produced undesirable effects characteristic of marijuana indulgence.

Cantharis, Cantharis Plaster, Tincture of Cantharis—Employed essentially as a local irritant and blistering agent. Blisters have fallen into disuse. As an irritant in scalp lotions and otherwise, the remedy is superfluous.

Capsicum, Tincture of Capsicum—A local irritant with extensive use, but not considered important enough for the Pharmacopœia.

Carbromal—A mild sedative, closely related to and differing little from the extensively used and better known barbiturates. The amount of bromine in a dose is altogether too small to give a bromide action.

Cinchona, Compound Tincture of Cinchona—As antimalarial no longer employed. For the purposes of a bitter, remedies just as effective but simpler are available.

Compound Mixture of Opium and Glycyrrhiza—Brown Mixture represents what now is looked upon as an almost extinct type of galenical. In teaspoonful doses, its antimony and opium are too little to be therapeutically effective.

Compound Powder of Senna (Compound Licorice Powder)—As a senna preparation it is complicated by the presence of sulfur, which gives an unduly soft consistency to the stools, and often a very offensive odor.

Copaiba—An old-time urinary antiseptic, bad tasting and irritating to the stomach and kidneys. It is not a very effective antiseptic in the urinary tract, and simpler and better drugs for the purpose are available.

Dichloramine-T and Dakin's Solution—Dichloramine-T, the oil-soluble chlorine furnisher, and Dakin's solution (Diluted Solution of Sodium Hypochlorite) were deleted on the ground of their proven inefficiency. The water-soluble Chloramine-T was retained. For the slow and steady elimination of chlorine, Azochloramid in triacetin solution was considered superior and was admitted. The latter is now being extensively employed in Britain in preference to other chlorine antiseptics.

Diluted Acetic Acid was a "pharmaceutic necessity" in the manufacture of Solution of Ammonium Acetate and Vinegar of Squill, both of which have been deleted.

Elixir of Glycyrrhiza—The Syrup of Glycyrrhiza was substituted for the elixir on the basis of its more extensive employment and its freedom from alcohol.

Ethylhydrocupreine Hydrochloride—Introduced for the treatment of pneumonia it has proved too toxic for oral or parenteral use, and ineffective. It is still employed as a local application in pneumococcal infections of the eye but for this use it is rapidly being supplanted.

Extract of Nux Vomica—Of no use as a bitter, and for a strychnine effect it is more rational to employ strychnine salts.

Fluidextract of Belladonna Root—The exclusion of this follows the general principle that, where the dose is very small, such concentrated liquid preparations as fluidextracts are undesirable. It was formerly retained for the preparation of Belladonna Liniment, but this is no longer a Pharmacopœial preparation.

Iodoform—Vile-smelling and of low rating as an antiseptic. It is rapidly being replaced by more effective agents which lack the disagreeable odor.

Iron—This was elementary iron, in the form of fine bright wire, filings or powder. It was used in the preparation of Syrup of Ferrous Iodide which has been deleted.

Kino, Tincture of Kino—A tannic acid remedy, which does not reach the lower intestines as such.

Magma of Ferric Hydroxide—It was introduced as an arsenic antidote. At best it is not very efficient, and there are conflicting reports as to any efficiency at all.

Mass of Mercury (Blue Mass)—Now considered an obsolete mercury galenical preparation.

Merbaphen—Its use has been largely abandoned in favor of the less toxic and more effective Salyrgan, which is now admitted to the Pharmacopœia.

Nutgall, Nutgall Ointment—This is employed for its tannic acid, and preparations of the latter are to be preferred.

Oil of Santal—Irritating to the stomach and kidneys, and not a powerful antiseptic in the urinary tract. Much more effective chemical remedies are now available.

Pepsin—A powerful enzyme that is superfluous in therapeutics. For the digestion of protein it acts best in an acid medium of p_H 1.5 to p_H 2.5, and does not act at all in a medium above p_H 4.0 to 4.5. In gastric achylia the needed acidity cannot be obtained in the stomach by any doses of acid that it is possible for a patient to swallow.

Pills of Aloe—Drastic cathartics no longer have Pharmacopœial approval. However, Aloe itself has been retained, and also Aloin, which is not drastic.

Podophyllum, Resin of Podophyllum—Also a drastic cathartic. Drastics are irritant to the whole alimentary tract, from the stomach down. If catharsis fails to take place, they are capable of producing inflammation of the intestines, and, after absorption, of the kidneys.

Potassium Chlorate—An antiquated mouth astringent. Any internal use for it is not justified.

Powder of Ipecac and Opium—Its main use is to produce sweating and sleep. Its ability to induce copious sweating depends mainly upon the hot drinks with which it is administered and the heavy covering of bed-clothes. The ipecac is nauseating, and in this powder can scarcely be said to be used for its expectorant value. The opium is simply "dope," to be better prescribed by itself if it is desired.

Pyrogallol—Not now much used as an antiseptic in therapeutics.

Quinine—This is the pure alkaloid, as distinguished from its salts. It is not used in therapeutics and is not required as a "pharmaceutic necessity."

Santonin—As an anthelmintic it has given place to newer remedies.

Serpentaria—This was a "pharmaceutic necessity" in the preparation of Compound Tincture of Cinchona, which has been deleted.

Sodium Acetate—The potassium salt is preferred and much more in use.

Solution of Ammonium Acetate—Believed to be of no therapeutic value.

Solution of Ferric Chloride, Tincture of Ferric Chloride—The solution was required for the preparation of the Tincture. As an anti-anemia remedy the tincture has been largely supplanted by iron preparations that do not injure the teeth and are less astringent.

Solution of Iron Tersulfate—Formerly used as a hemostatic, this makes a nasty mess when mixed with blood, and is locally irritating and even corrosive.

Spirit of Chloroform—Not desirable as a sedative and not needed as a carminative.

Spirit of Ethyl Nitrite—Not effective as a nitrite, and has no distinctive therapeutic properties.

Squill, Syrup of Squill, Tincture of Squill, Vinegar of Squill—Squill lacks the highest approval as a cardiac drug. Its use as an expectorant is based on erroneous observations.

Strychnine Nitrate—On account of the efflorescence of the sulfate, the nitrate was admitted to the last revision as a stable salt. However, it has not come into favor, and it was considered unnecessary to admit two strychnine salts.

Sulfonethylmethane—The limitations and disadvantages of "Trional" as a hypnotic have greatly lessened its use.

Syrup of Ferrous Iodide—Unsatisfactory as a means of administering either iron or iodine. The dose of each should be separately considered.

Terebene—Neither antiseptic in the respiratory tract, nor valuable as an expectorant.

Theobromine with Sodium Salicylate—Theobromine with Sodium Acetate is considered better, and it eliminates the chance of harm to diseased kidneys from the salicylic radicle.

Valerian, Tincture of Valerian—Believed to be an over-rated drug in hysteria, and too malodorous as a carminative.

Veratrum Viride, Tincture of Veratrum Viride—A dangerously toxic drug, highly variable, and very little used. Its chief employment is in eclampsia, in which extremely large (and dangerous) doses are recommended by its advocates. Reports from many noted obstetricians are not favorable to its use in eclampsia.

Washed Sulfur—Three forms of sulfur were deemed unnecessary for the Pharmacopœia. Precipitated Sulfur and Sublimated Sulfur are retained.

Yellow Mercurous Iodide—Formerly extensively administered as an oral antisyphilitic, this remedy has been supplanted by more desirable remedies.

LIST OF PROPOSED ADMISSIONS TO THE U. S. P. XII AS OF JULY 25, 1941

Acacia
  Acacia, Mucilage
Acetanilid
Acetone
Acetophenetidin
  Acetophenetidin Tablets**
Acid Acetic
Acid Acetic, Glacial
Acid Acetylsalicylic
  Acetylsalicylic Acid Tablets**
Acid Aminoacetic*
Acid Ascorbic
  Ascorbic Acid Tablets*
Acid Benzoic
Acid Boric
Boric Acid Ointment
Acid Citric
Acid Hydriodic, Diluted
  Hydriodic Acid Syrup
Acid Hydrochloric
  Diluted Hydrochloric Acid
Acid Hypophosphorous
Acid Lactic
Acid Mandelic
  Ammonium Mandelate Syrup**
Acid Nicotinic
  Nicotinic Acid Tablets*
Acid Nitric
Acid Phosphoric
  Diluted Phosphoric Acid
Acid Salicylic
Acid Sulfuric
  Diluted Sulfuric Acid
Acid Tannic
  Tannic Acid Glycerite
  Tannic Acid Ointment
  Tannic Acid Solution** (for burns)
Acid Tartaric
Acid Trichloroacetic
Adhesive Plaster, Sterile*
  Adhesive Plaster (Unsterilized)
Agar
Allyl Isothiocyanate (Volatile Oil of Mustard)
Aloe**
Aloin
Alum
  Exsiccated Alum
Alumina Hydrated*
  Alumina Hydrated, Magma*
Aminopyrine
Aminoquin (Plasmochin)
Ammonia, Aromatic Spirit
Ammonia, Dilute Solution (Ammonia Water)
Ammonia, Strong Solution (Stronger Ammonia Water)
Ammonium Carbonate
Ammonium Chloride
  Ammonium Chloride Capsules*
Amphetamine (Benzedrine)*
Amphetamine Sulfate*
  Amphetamine Sulfate Tablets*
Amyl Nitrite
Antimony and Potassium Tartrate
Antipyrine
Apomorphine Hydrochloride (only in vacuum ampuls)
Arsenic Trioxide
  Arsenous Acid Solution
Arsphenamine
Aspidium
  Aspidium Oleoresin
Atropine
Atropine Sulfate
  Atropine Sulfate Tablets**
Barbital
  Barbital Tablets**
Barbital, Soluble
  Soluble Barbital Tablets**
Barium Sulfate
Belladonna Leaf
  Belladonna Extract
  Belladonna Tincture
  Belladonna Ointment
Belladonna Root
  Belladonna Plaster
Benzoin
  Benzoin Tincture
  Compound Benzoin Tincture
Betanaphthol
Bismuth and Potassium Tartrate
  Bismuth and Potassium Tartrate Injection*
Bismuth Subcarbonate
Bismuth Subnitrate
Bismuth Subsalicylate
  Bismuth Subsalicylate Injection**
Bismuth Sulfarsphenamine (Bismarsen)*
Blood (Normal Human Blood)*
Boroglycerin Glycerite
Brandy
Butaprobenz Sulfate (Butyn Sulfate)*
Butesin Picrate*
  Butesin Picrate Ointment*
Butyl Aminobenzoate (Butesin)*
Caffeine
Caffeine Citrate
Caffeine with Sodium Benzoate
  Caffeine with Sodium Benzoate Injection**
Calcium Carbonate, Precipitated
Calcium Chloride
Calcium Gluconate
  Calcium Gluconate Injection**
Calcium Hydroxide
  Calcium Hydroxide Solution
Calcium Iodobehenate
Calcium Lactate
Calcium Mandelate*
Calcium Phosphate, Tribasic
Calcium Sulfate*
  Calcium Sulfate Bandage*
Camphor
  Camphor Water
  Camphor Spirit
  Camphor Liniment
  Camphor and Soap Liniment
Capsules (General Chapter)*
Carbarsone*
Carbon Dioxide
Carbon Tetrachloride
  Carbon Tetrachloride Capsules*
Cascara Sagrada
  Cascara Sagrada Extract
  Cascara Sagrada Extract Tablets*
  Cascara Sagrada Fluidextract
  Aromatic Cascara Sagrada Fluidextract

* New Admissions for U. S. P. XII.
** New Admissions for U. S. P. XII which were official in N. F. VI or were approved for admission to N. F. VII.

Castor Oil
Chalk, Prepared
  Chalk Mixture
  Chalk Powder Compound
Charcoal, Activated
Chaulmoogra Oil
Chenopodium Oil
  Chenopodium Oil Capsules*
Chiniofon
  Chiniofon Tablets* (enteric coated)
Chloral Hydrate
Chloramine-T
Chlorazodine (Azochloramide)*
  Chlorazodine Solution*
Chlorobutanol
Chloroform
  Chloroform Water
  Chloroform Liniment
Chromium Trioxide
Chrysarobin
  Chrysarobin Ointment
Cinnamon
  Cinnamon Spirit
Citrated Human Plasma*
Clove
  Clove Oil
Cocaine
Cocaine Hydrochloride
Cod Liver Oil
  Cod Liver Oil Emulsion
Cod Liver Oil, Non-destearinated
Codeine
Codeine Phosphate
  Codeine Phosphate Tablets**
Codeine Sulfate
  Codeine Sulfate Tablets**
Colchicum Seed
  Colchicum Seed Tincture
Colchicine
  Colchicine Tablets*
Copper Sulfate
Cotton, Purified, Sterile
Cresol
  Cresol, Saponated Solution
Cyclopropane
Decoction (General Formula)
Desoxycortone Acetate (Desoxycorticosterone Acetate)*
Dextrose (Glucose)
  Dextrose Injection**
  Dextrose and Sodium Chloride Injection**
Digitalis
  Digitalis Capsules*
  Digitalis Injection*
  Digitalis, Powdered
  Digitalis Tablets*
  Digitalis Tincture
Dihydromorphinone Hydrochloride (Dilaudid)*
  Dihydromorphinone Hydrochloride Tablets*
Diphenylhydantoin Soluble (Dilantin Sodium)*
  Diphenylhydantoin, Soluble, Capsules*
Diphtheria Antitoxin
Diphtheria Toxoid
Diphtheria Toxin, Diagnostic
Emetine Hydrochloride
  Emetine Hydrochloride Injection**
Ephedrine
Ephedrine Hydrochloride
Ephedrine Sulfate
  Ephedrine Sulfate Tablets*
Epinephrine
  Epinephrine Hydrochloride Solution (1:1000)
  Epinephrine Hydrochloride Injection**
  Epinephrine Hydrochloride, Strong Solution* (1:100)
Ergot
  Ergot Fluidextract
Ergonovine Maleate*
  Ergonovine Maleate Tablets*
Ergonovine Maleate Injection*
Ergotamine Tartrate*
  Ergotamine Tartrate Tablets*
Erythrityl Tetranitrate Tablets (formerly Erythrityl Tetranitrate Diluted)
Estradiol Benzoate*
Estrone*
  Estrone Injection (in Oil)*
  Estrone Tablets*
Ether (for Anesthesia)
Ethyl Aminobenzoate
  Ethyl Aminobenzoate Ointment*
Ethyl Carbamate**
Ethyl Chaulmoograte
Ethyl Chloride
Ethylene
Ethylmorphine Hydrochloride

Eucaine Hydrochloride
Eucatropine Hydrochloride (Euphthalmine HCl)*
Eucalyptol
Eucalyptus Oil
Eugenol
Extracts (General Formula)
Fluidextracts (General Formula)
Fluorescein, Soluble
Formaldehyde Solution
Gauze, Absorbent*
Gauze, Absorbent, Sterile*
Gauze, Adhesive Absorbent*
Gauze Bandage*
Gelatin
Gentian
  Compound Gentian Tincture
Ginger
  Ginger Fluidextract
Globulin, Human Immune*
Glycerin Suppositories
Glyceryl Trinitrate Spirit
Glyceryl Trinitrate Tablets
Halibut Liver Oil*
  Halibut Liver Oil Capsules*
Hexylresorcinol*
Histamine Phosphate
  Histamine Phosphate Injection (formerly Solution)
Homatropine Hydrobromide
  Homatropine Lamels*
Human Serum*
Hydrogen Peroxide Solution
Hyoscyamus
  Extract of Hyoscyamus
  Tincture of Hyoscyamus
Infusions (General Formula)
Injections (General Chapter)*
Iodophthalein Soluble
Iodine
  Iodine Ointment
  Iodine Solution, Compound
  Mild Iodine Solution (Mild Tincture)
  Strong Iodine Solution (Iodine Tincture)
Iodized Oil
Ipecac
  Ipecac Fluidextract
  Ipecac Syrup
Insulin Injection*
  Insulin, Crystalline Zinc, Injection*
  Insulin, Protamine Zinc, Injection*
Iron and Ammonium Citrate
  Iron and Ammonium Citrate Capsules*
Iron and Ammonium Citrate, Green
Iron (Ferrous) Carbonate Mass
Iron (Ferrous) Carbonate Pills (10 gr.)
Iron (Ferrous) Sulfate
Iron (Ferrous Sulfate, Exsiccated*
  Ferrous Sulfate Tablets*
Iron, Reduced
Lactose
Lamels (Eye Discs)*
Lead Acetate
Linseed
Liver Extract
  Liver Injection
  Liver Extract Solution
Magnesia Magma
Magnesium Carbonate
Magnesium Citrate Solution
Magnesium Oxide
Magnesium Oxide, Heavy
Magnesium Phosphate Tribasic
  Tribasic Magnesium Phosphate Tablets*
Magnesium Sulfate
Magnesium Trisilicate*
  Magnesium Trisilicate Tablets*
Malt Extract
Menadione (Vitamin K Activity)*
  Menadione Tablets*
Menthol
Mercurin* (Pharmaceutic Necessity)
Mercurphylline (Mercupurin Solution)*
Mercury
  Strong Mercurial Ointment
  Mild Mercurial Ointment
  Mercury with Chalk
Mercury, Ammoniated
  Ammoniated Mercury Ointment
Mercury Oleate
Mercury Bichloride
  Mercury Bichloride Tablets, Large
  Mercury Bichloride Tablets, Small
Mercury (Mercurous) Chloride, Mild
Mercury (Mercuric) Oxide, Yellow
  Yellow Mercuric Oxide Ointment
Mercury (Mercuric) Salicylate
  Mercury Salicylate Injection**
Mercury (Mercuric) Succinimide
Mersalyl (Salyrgan)*

* New Admissions for U. S. P. XII.
** New Admissions for U. S. P. XII which were official in N. F. VI or were approved for admission to N. F. VII.

Mersalyl with Theophylline Injection*
Metarsen (Mapharsen)*
Methenamine
Methenamine Tablets*
Methyl Salicylate
Methylrosaniline Chloride
Methylthionine Chloride
Morphine Sulfate
Morphine Sulfate Tablets**
Mustard, Black
Mustard Plaster
Myrrh
Myrrh Tincture
Neoarsphenamine
Neocinchophen
Neocinchophen Tablets**
Neostigmine Bromide (Prostigmine Br.)*
Neostigmine Bromide Tablets*
Neostigmine Methyl Sulfate* (Prostigmine M. S.)
Neostigmine Methyl Sulfate Injection*
Nicotinamide*
Nicotinamide Tablets*
Nitrogen Monoxide
Nux Vomica
Nux Vomica Tincture
Oleovitamin A
Oleovitamin A Capsules*
Oleovitamin A and D
Oleovitamin A and D Capsules*
Oleovitamin A and D, Concentrated
Concentrated Oleovitamin A and D Capsules*
Oleovitamin D, Synthetic
Opium
Opium Tincture
Camphorated Opium Tincture
Opium, Granulated
Opium, Powdered
Ox Bile
Ox Bile Extract
Ox Bile Extract Tablets*
Oxygen
Ouabain*
Ouabain Injection*
Orange Peel, Bitter
Bitter Orange Peel Tincture
Pancreatin
Paraldehyde
Parathyroid Solution
Pelletierine Tannate
Pentobarbital Soluble
Soluble Pentobarbital Tablets*
Pentothal Sodium*
Peppermint
Peppermint Oil
Peppermint Spirit
Peru Balsam
Petrolatum, Liquid
Liquid Petrolatum Emulsion
Phenacaine Hydrochloride
Phenobarbital
Phenobarbital Elixir**
Phenobarbital Tablets**
Phenobarbital, Soluble
Soluble Phenobarbital Tablets**
Phenol
Phenol, Liquefied
Phenol Ointment
Phenolphthalein
Phenolsulfonphthalein
Phenolsulfonphthalein Injection*
Phenyl Salicylate
Physiological Solution of Chlorides (Ringer's Solution)**
Physostigmine Salicylate
Physostigmine Lamels*
Picrotoxin*
Picrotoxin Injection*
Pilocarpine Nitrate
Pine Needle Oil, Dwarf
Pituitary Posterior (Biologically Standardized Powder)
Posterior Pituitary Injection** (formerly Solution)
Potash, Sulfurated
Potassium Acetate
Potassium Arsenite Solution
Potassium Bicarbonate
Potassium Bitartrate
Potassium Bromide
Potassium Carbonate
Potassium Chloride**
Potassium Chloride Tablets*
Potassium Citrate
Effervescent Potassium Citrate
Potassium and Sodium Tartrate
Compound Effervescent Powders
Potassium Hydroxide
Potassium Iodide
Potassium Nitrate
Potassium Permanganate
Procaine Hydrochloride
Progesterone*
Progesterone Injection*
Quinacrine (Atabrine)*
Quinacrine Tablets*
Quinidine Sulfate
Quinidine Sulfate Tablets*
Quinine Ethylcarbonate
Quinine Bisulfate
Quinine Dihydrochloride
Quinine and Urea Hydrochloride
Quinine Hydrochloride**
Quinine Hydrochloride and Ethyl Carbamate Injection**
Quinine Sulfate
Quinine Sulfate Tablets*
Radium*
Resorcinol
Rhubarb
Rhubarb Extract
Aromatic Rhubarb Tincture
Aromatic Rhubarb Syrup
Riboflavine*
Riboflavine Tablets*
Rice Polishings (Tikitiki)*
Rice Polishings Extract*
Rosin Cerate
Saccharin
Saccharin, Soluble
Saccharin Soluble Tablets**
Scarlet Fever Streptococcus Antitoxin
Scarlet Fhver Streptococcus Toxoid
Scopolamine Hydrobromide
Senna
Senna Fluidextract
Senna Syrup
Serum, Antimeningococcic
Serum, Antipneumococcic (All approved types)
Serum, Human Scarlet Fever Immune*
Serum, Human Measles, Immune*
Silver Nitrate
Silver Nitrate, Toughened
Silver Protein, Mild
Silver Protein, Strong
Soap, Soft
Soft Soap Liniment
Sodium Benzoate
Sodium Bicarbonate
Sodium Biphosphate
Sodium Borate
Sodium Bromide
Sodium Cacodylate
Sodium Carbonate Monohydrated
Sodium Chloride
Sodium Chloride Physiological Solution
Sodium Citrate
Sodium Citrate Solution, Sterile**
Sodium Hydroxide
Sodium Hypochlorite Solution
Sodium Iodide
Sodium Nitrite
Sodium Nitrite Tablets**
Sodium Perborate
Sodium Phosphate
Effervescent Sodium Phosphate
Exsiccated Sodium Phosphate
Sodium Salicylate
Sodium Salicylate Tablets**
Sodium Sulfate
Sodium Sulfite*
Sodium Thiosulfate
Spearmint
Spearmint Oil
Spearmint Spirit
Stomach
Stramonium
Stramonium Extract
Stramonium Tincture
Strophanthin
Strophanthin Injection*
Strychnine Sulfate
Strychnine Sulfate Tablets**
Styrax
Sulfanilamide
Sulfanilamide Tablets**
Sulfarsphenamine*
Sulfapyridine*
Sulfapyridine Tablets*
Sulfapyridine Soluble (Sterile for Injection)*
Sulfathiazole*
Sulfathiazole Tablets*
Sulfbromophthalein (Bromsulphalein) Soluble*
Sulfbromophthalein Soluble Injection*
Sulfur, Precipitated
Sulfur Ointment
Sulfur, Sublimed

* New Admissions for U. S. P. XII.
** New Admissions for U. S. P. XII which were official in N. F. VI or were approved for admission to N. F. VII.

Suppositories (General Formula)
Suprarenal Cortex, Extract (Cortin)*
  Suprarenal Cortex Injection*
Surgical Gut (Sterile)
Surgical Silk*
Surgical Silk, Sterile*
Suture, Surgical, Synthetic*
Suture, Surgical, Synthetic, Sterile*
Tablets (General Chapter)*
Tar, Juniper
Tar, Pine
  Pine Tar Ointment
  Pine Tar Syrup
Tar, Rectified Oil
Terpin Hydrate
Testosterone Propionate*
  Testosterone Propionate Injection*
  Testosterone Propionate Tablets*
Tetanus Antitoxin
Tetanus Toxoid*
Tetracaine Hydrochloride (Pontocaine HCl)*
Tetrachloroethylene**
  Tetrachloroethylene Capsules*
Theobromine with Sodium Acetate*
  Theobromine with Sodium Acetate Capsules*
Theophylline
  Theophylline Tablets*
Theophylline with Ethylenediamine
  Theophylline with Ethylenediamine Tablets*
  Theophylline with Ethylenediamine Injection*
Theophylline with Sodium Acetate
  Theophylline with Sodium Acetate Tablets*
Thiamine Hydrochloride
  Thiamine Hydrochloride Elixir**
  Thiamine Hydrochloride Tablets*
Thymol
  Thymol Iodide
Thyroid
  Thyroid Tablets*
Thyroxin
  Thyroxin Tablets*
Tinctures (General Formula)
Tolu Balsam
  Tolu Balsam Syrup
  Tolu Balsam Tincture
Totaquine*
Tribromoethanol (Avertin)*
Tribromoethanol Solution (Avertin with Amylene Hydrate)*
Trichloroethylene (pearls)*
Trinitrophenol
Triturations (General Formula)
Tryparsamide
Tuberculin, Old
Turpentine Oil
  Turpentine Oil Emulsion
Turpentine Oil, Rectified
Urea*
Vaccine, Rabies
Vaccine, Smallpox
Vaccine, Typhoid
Vaccine (Typhoid-Paratyphoid)
Whisky
Wild Cherry
  Wild Cherry Syrup
Yeast*
  Yeast Tablets*
Zinc Acetate
Zinc Chloride
Zinc Oxide
  Zinc Oxide Ointment
Zinc Stearate
Zinc Sulfate

VEHICLES, FLAVORS, COLORS, SOLVENTS AND OTHER AIDS

Acid, Oleic
Acid, Stearic
Alcohol
  Alcohol, Diluted
Alcohol, Dehydrated
Almond Oil Bitter
Almond Oil, Expressed
Althea
Amylene Hydrate*
Anise Oil
  Anise Spirit
  Anise Water
Aromatic Elixir
Aromatic Waters (General Formula)
Bentonite**
Benzine, Purified Petroleum
Caraway
Cardamon Seed
  Compound Cardamon Tincture
Cerate
Cinnamon Oil
  Cinnamon Water
Citric Acid Syrup (Lemon)
Cochineal
Collodion
Collodion Flexible
Coriander Oil
Cotton Seed Oil
Cudbear**
Eriodictyon
  Eriodictyon Fluidextract
Ethyl Oxide (for reagent and solvent)
Fennel Oil
  Fennel Water
Glucose, Liquid
Glycerin
Glycerinated Gelatin
Glyceryl Triacetate (Triacetin)
Glycyrrhiza
  Glycyrrhiza Extract
  Pure Glycyrrhiza Extract
  Glycyrrhiza Fluidextract
  Glycyrrhiza Syrup**
Honey
Juniper Oil
Lard
  Benzoinated Lard
Lavender Oil
Lavender Spirit
  Compound Lavender Tincture
Lemon Peel
  Lemon Peel Tincture
Lemon Oil
Linseed Oil
Lycopodium
Nutmeg
  Nutmeg Oil
Ointment (Simple Ointment)
Ointment, Yellow (Simple Ointment with Yellow Wax)*
Ointment (Absorption-base-type)*
Ointment of Rose Water
Olive Oil
Orange Flower Water
  Orange Flower Syrup
Orange Oil
Orange Peel Sweet
  Orange Spirit Compound
  Orange Syrup
  Orange Peel, Sweet Tincture
Peppermint Water
Petrolatum
Petrolatum, Liquid Light
Petrolatum, White
Pyroxylin
Red Saunders
Rose Oil
Rose Water
  Rose Water, Stronger
Rosemary Oil
Rosin
Sarsaparilla
  Sarsaparilla Fluidextract
  Compound Sarsaparilla Syrup
Sassafras Oil
Siliceous Earth, Purified
Soap, Hard
Soda Lime*
Sodium Stearate
Spearmint Water
Spermaceti
Starch
  Starch Glycerite
Sucrose
Suet, Prepared
Syrup
Talc, Purified
Theobroma Oil
Tragacanth
  Tragacanth Mucilage
Vanillin
Water
  Distilled
  Distilled Sterile
Water for Injection*
Wax, Yellow
Wax, White
Wool Fat
  Hydrous Wool Fat

* New Admissions for U. S. P. XII.
** New Admissions for U. S. P. XII which were official in N. F. VI or were approved for admission to N. F. VII.

ARTICLES OFFICIAL IN THE U. S. P. XI BUT NOT ADMITTED TO THE U. S. P. XII

Acetum Scillae
Acidum Aceticum Dilutum
Acidum Acetyltannicum
Acidum Sulfuricum Aromaticum
Aconitum
Acriflavina
Acriflavinæ Hydrochloridum
Aethylhydrocupreinæ Hydrochloridum
Albumini Tannas
Ammonii Benzoas
Ammonii Bromidum
Ammonii Salicylas
Arseni Triiodidum
Asafœtida
Bismuthi Subgallas
Calcii Bromidum
Calcii Creosotas
Cannabis
Cantharis
Capsicum
Carbromalum
Ceratum Cantharidis
Cinchona
Copaiba
Creosoti Carbonas
Creosotum
Dichloramina-T
Elixir Glycyrrhizæ
Emplastrum Cantharidis
Emulsum Asafoetidæ
Extractum Cannabis
Extractum Nucis Vomicæ
Ferrum
Fluidextractum Belladonnæ Radicis
Fluidextractum Cannabis
Galla
Guaiacol
Hydrargyri Iodidum Flavum
Iodoformum
Kino
Liquor Ammonii Acetatis
Liquor Ferri Chloridi
Liquor Ferri Tersulfatis
Liquor Sodii Hypochloritis Dilutus
Magma Ferri Hydroxidi
Massa Hydrargyri
Merbaphenum
Mistura Opii et Glycyrrhizæ Composita
Oleum Maydis
Oleum Santali
Paraffinum
Paraffinum Chlorinatum
Pepsinum
Pilulæ Aloes
Podophyllum
Potassii Chloras
Pulvis Ipecacuanhæ et Opii
Pulvis Sennæ Compositus
Pyrogallol
Quinina
Resina Podophylli
Santoninum
Scilla
Serpentaria
Sodii Acetas
Spiritus Aethylis Nitritis
Spiritus Chloroformi
Strychninæ Nitras
Sulfonethylmethanum
Sulfur Lotum
Syrupus Ferri Iodidi
Syrupus Scillæ
Terebenum
Theobromina cum Sodii Salicylate
Tinctura Aconiti
Tinctura Cantharidis
Tinctura Capsici
Tinctura Cinchonæ Composita
Tinctura Ferri Chloridi
Tinctura Kino
Tinctura Scillæ
Tinctura Valerianæ
Tinctura Veratri Viridis
Unguentum Gallæ
Valeriana
Veratrum Viride

APPLICATION FOR MEMBERSHIP

IN THE

American Pharmaceutical Association

Approving the objects of the American Pharmaceutical Association, I hereby apply for membership in the Association and subscribe for the "Journal of the American Pharmaceutical Association." I enclose $ for my membership dues and subscription.

Check which you desire:

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Name in Full .....

(Print name in full—Initials are not sufficient)

Number and Street .....

Date ..... **Town** ..... **State** .....

Paid $ ..... **No.** .....

This application with the first year's payment may be sent to the Chairman of the Membership Committee, the Secretary or any officer of the A. Ph. A.

E. F. KELLY, Secretary,
2215 Constitution Ave.,
Washington, D. C.

Druggists' Digest

OF NEW FORMULAS, RECENT PHARMACEUTICAL DEVELOPMENTS, AND OTHER PROFESSIONAL DATA

CHLOROFORM STOPS ITCHING OF INSECT BITES

The local application of a small amount of chloroform with a piece of cotton will promptly stop the itching of certain mosquitoes, flies, gnats and other insects, according to W. A. Hoffman, of the School of Tropical Medicine, San Juan, Puerto Rico.

When applied, the chloroform produces a transient burning sensation. It must, of course, be kept away from the eyes and mucous membranes.

—*Science, 94 (2429), July 18 (1941), 66*

SODIUM PERBORATE FOR TRICHOMONAS VAGINALIS

The flagellate protozoon trichomonad responsible for *trichomonas vaginalis* vaginitis is destroyed by oxygen and Dr. E. C. Smith, of the Department of Obstetrics and Gynecology, School of Medicine, Louisiana State University, New Orleans, has developed a sodium perborate treatment for this infection.

After diagnosis, the vaginal secretion is tested with nitrozene paper to determine its p_H. A p_H of 6.0, which is usual in trichomoniasis, is sufficiently acid to decompose sodium perborate. If the secretion is not sufficiently acid, a douche of lactic acid, 1 dram to 1 quart of warm water, is taken before treatment is begun.

One capsule (No. 12 veterinary) containing 10 grains of sodium perborate is inserted deep into the posterior vaginal fornix, either by instrument or rubber gloved finger. Lubrication of the capsule with jelly facilitates its insertion.

The patient is told to carry out the same procedure for 15 consecutive days and to take a vaginal douche of sodium perborate solution, 15 Gm. to 1 quart of luke warm water, at bedtime each night. The douche is taken slowly in a reclining position.

If the vaginal reaction was originally acid, the douches are continued for 75 days. If the reaction was alkaline, a daily douche of lactic acid or of vinegar is taken for the same period.

—*New Orleans Med. and Surg. Jour. (June 1941)*

FUNGISTATIC OINTMENTS OF THYMOL AND CINNAMON

Ointments of thymol and oil of cinnamon are extremely effective fungistatic agents, according to F. J. O'Brien and W. J. Bonisteel, of Fordham University. Tested against *Trichophyton interdigitale* and *monilia albicans*, these drugs in ointment form proved more effective than ointment of yellow oxide of mercury, benzoic acid compound, iodine, ammoniated mercury, sulfur, phenol, or three proprietary products: Merthiolate, Kerolysin and Fungi Rex. So favorable were the results of their *in vitro* studies, that they have suggested the clinical trial of an ointment made by the following formula:

Thymol	2.5 Gm.
Oil of Cinnamon	1.0 cc.
Cold cream or Vanishing cream, *q. s.*	100.0 Gm.

(Iodine Ointment, U. S. P., may be used as the base if the bacteriostatic action of iodine is desired in addition to the fungistatic action of thymol and oil of cinnamon.)

So effective were ointments of thymol and oil of cinnamon that at one point in the work *Trichophyton interdigitale* had to be discarded as a test organism because no growth whatsoever appeared on plates being tested with these two drugs. Instead of merely producing a clear zone of inhibited growth, the ointments of thymol and oil of cinnamon prevented growth of the fungus on the entire plate. In another test when maltose agar slants were inocculated with this fungus, 1 Gm. of ointment of thymol or oil

of cinnamon was placed on the tip of a cotton plug, the plug inserted in the test-tube so that the ointment remained at least one inch away from the media, and the tube incubated for fourteen days, the vapors of the two drugs inhibited growth of the fungus. When ointment of thymol was tested against the more resistant *Monilia albicans* it was observed that the growth of the organism outside of the clear zone was less dense than was the case with other ointments, suggesting that thymol may diffuse over a larger area than recorded by the clear zone in sufficient concentration to be slightly inhibitory.

Of the official ointments tested, benzoic acid compound was found to be the most effective. Ointments of yellow mercuric oxide and ammoniated mercury, all of which are highly bacteriostatic, had no fungistatic value against *Monilia albicans* and had but slight value against *Trichophyton interdigitale*. Iodine was fairly effective against the latter organism but had little effectiveness against the former.

Phenol, although highly fungicidal in solution form, was found to have no inhibitory power in the form of the official ointment against either organism.

In order to determine whether the ointment base had any effect on the fungistatic value of the preparation, the ointments of oil of cinnamon, thymol, chlorthymol, and phenol were made with cold cream, vanishing cream, and a mixture of petrolatum, wax and lanolin. None of the bases had any inhibitory power in themselves, but the cold cream and vanishing cream permitted a greater diffusion of the medicinal agent into the media than did the petrolatum and, therefore, are to be preferred.

—*Jour. A. Ph. A. (Sci. Ed.), 30 (July, 1941), 191–196.*

SODIUM HEXAMETAPHOSPHATE FOR BISMUTH GINGIVITIS

Many patients receiving bismuth therapy for syphilis develop a bluish pigmentation of the gums and lesions of the mucous membranes of the mouth. Dr. I. M. Felsher and K. K. Jones, of Chicago, have found that a tooth powder of sodium hexametaphosphate eliminates the oral uncleanliness, tartar on enamel and the infection responsible for these oral manifestations. They prescribe the following combination:

Sodium Hexametaphosphate.....	15.
Talc.....	85.

Patients are instructed to use it on their toothbrushes after each meal and at bedtime. It is not injurious to tissues, according to the authors. The use of this tooth powder reduced noticeably the incidence and severity of bismuth reactions in the oral cavity and permitted the resumption of treatment with bismuth in some cases in which its use had been discontinued because of the patient's intolerance.

—*Jour. Invest. Derm., 4:4 (April, 1941) 95–180.*

OXIDIZING MOUTH WASH IN VINCENT'S INFECTION

F. D. Francis, Associate Professor, Department of Oral Pathology and Periodontia, State University of Iowa, recommends that patients use an oxidizing mouth wash during treatment for Vincent's Infection. The formula for such a preparation is given as follows:

Fowler's Solution	6 ounces
Glycerin	4 ounces
Hydrogen Peroxide . . .	½ gallon
Distilled Water . . q. s	1 gallon

Sufficient copper sulfate is added to make a 0.1 per cent solution. This ingredient is added immediately before the product is dispensed. The copper sulfate reduces fungus activity.

—*Jour. A. D. A., 28, 8 (August 1941), 1296–1303.*

PICTURE OF THE MONTH

The light in the pharmaceutical association secretary's office burns late. Hours after most men have gone home for the day you will find the secretary at his desk working on legislative problems, food and drug law interpretations, a plan for professional relations, or some other matter of vital concern to the pharmacists who are members of his association.

This picture happens to be of the office of Dr. E. F. Kelly, secretary of the American Pharmaceutical Association, in the American Institute of Pharmacy, Washington, D. C., but it might just as well be the office of any one of the forty-eight pharmaceutical association secretaries on whom the pharmacists of the country depend for counsel and leadership.

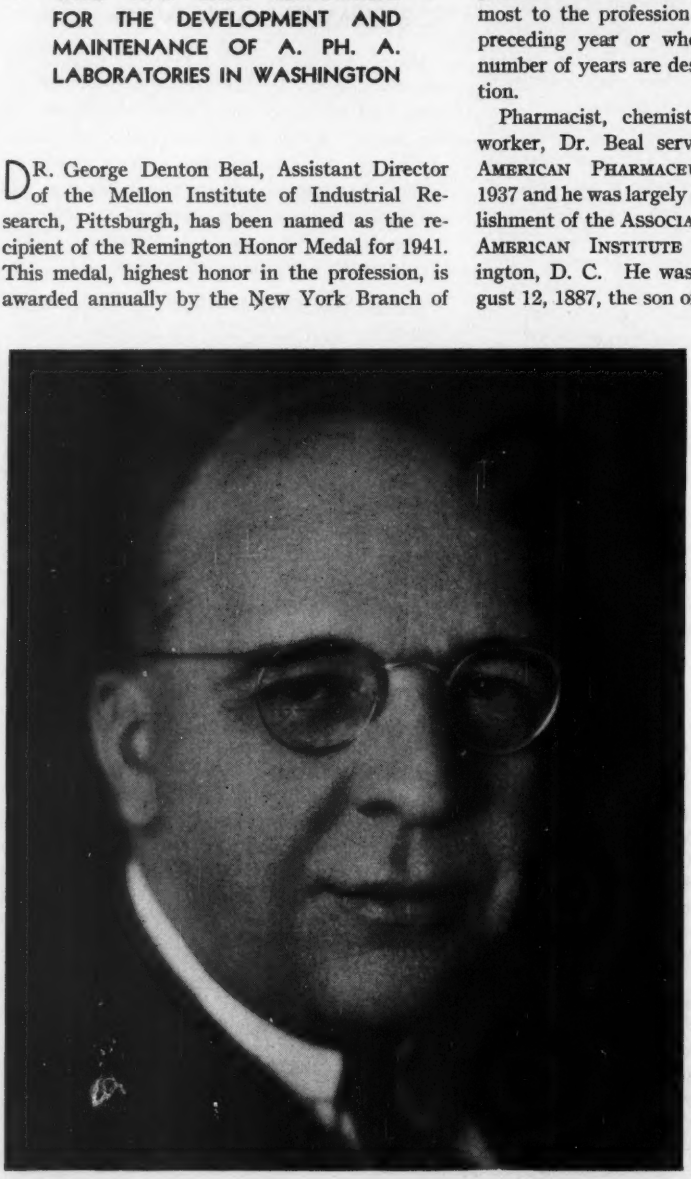
GEORGE D. BEAL NAMED

REMINGTON MEDALLIST FOR 1941

NEW YORK BRANCH RECOGNIZES WORK OF PHARMACIST-CHEMIST WHO HAS BEEN RESPONSIBLE FOR THE DEVELOPMENT AND MAINTENANCE OF A. PH. A. LABORATORIES IN WASHINGTON

DR. George Denton Beal, Assistant Director of the Mellon Institute of Industrial Research, Pittsburgh, has been named as the recipient of the Remington Honor Medal for 1941. This medal, highest honor in the profession, is awarded annually by the New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION to the man who, in the opinion of the past-presidents of the ASSOCIATION, has contributed most to the profession of pharmacy during the preceding year or whose contributions over a number of years are deserving of special recognition.

Pharmacist, chemist, teacher and research worker, Dr. Beal served as president of the AMERICAN PHARMACEUTICAL ASSOCIATION in 1937 and he was largely instrumental in the establishment of the ASSOCIATION'S laboratories in the AMERICAN INSTITUTE OF PHARMACY, Washington, D. C. He was born in Scio, Ohio, August 12, 1887, the son of James Hartley Beal and



Dr. George Denton Beal, Assistant Director of the Mellon Institute of Industrial Research, Pittsburgh, whose contributions to pharmacy have earned the Remington Honor Medal for 1941.

Photo by Blackstone Studios

Fannie Snyder (Young) Beal. His father served as president of the A. PH. A. in 1906 and was himself the recipient of the first Remington Medal in 1919.

Dr. Beal was graduated by the Scio College of Pharmacy in 1906 with the degree of Ph.C., and continued his studies simultaneously at that institution and at Scio College, earning the degrees of Ph.B. and Phar.D. In 1908 he entered Columbia University as a graduate student in Chemistry and he earned the degrees of A.M. and Ph.D. During the school year 1910–11 he held the Richard Butler Scholarship in Chemistry.

Following graduation Dr. Beal joined the faculty of the University of Illinois, holding the positions, successively, of Instructor in Chemistry, Associate in Chemistry, Assistant Professor in Chemistry, Associate Professor of Analytical and Food Chemistry, and Professor of Analytical and Food Chemistry. In 1926 he joined the Mellon Institute of Industrial Research as Assistant Director.

He has been active in the American Chemical Society, American Association for the Advancement of Science, American Health Association, American Society for Testing Materials, National Conference on Pharmaceutical Research and the Pennsylvania Academy of Science as well as in the AMERICAN PHARMACEUTICAL ASSOCIATION. He is a director of the Pittsburgh College of Pharmacy and a Trustee of Mt. Union College and of the Philadelphia College of Pharmacy and Science.

Dr. Beal has served as chairman of the Committee on Laboratory of this ASSOCIATION ever since that committee was created. His interest in research naturally made him one of the most enthusiastic proponents of the laboratories when they were in the discussion stage and when the ASSOCIATION decided to go ahead with the project, he threw himself wholeheartedly into the task of financing, organizing and staffing the laboratories. The enviable standing which the ASSOCIATION'S laboratories enjoy to-day among governmental and scientific groups reflects not only his vision but the soundness of his guidance. He was not one to be content with merely suggesting the creation of the laboratories and leaving the details up to someone else to work out; he personally supervised every step in their development and, with Dr. E. F. Kelly, raised the money for their maintenance.

A distinguished son of a distinguished father, Dr. George D. Beal has earned the Remington Honor Medal in the fullest sense of the word. Its award recognizes his services to pharmacy but it cannot honor him to the extent his own accomplishments have already distinguished him.

SEND FOR THIS BUSINESS YARDSTICK

For nine years Eli Lilly and Company have made known to the retail drug trade their willingness to evaluate the operating figures of retail drug stores and to supply a report with constructive suggestions calculated to assist retail druggists to overcome whatever conditions appear to be militating against the success of their management. In no sense can this service be interpreted to mean that a druggist is being advised on how he should run his business. The analyses are based on comparisons of the operating figures of successful stores by size of the town or city, by zones and by volume of sales. The service is offered without charge or obligation of any kind and in strict confidence. By the end of the business year a wealth of data has been gathered together and a most interesting economic report is published and distributed without charge to those participating and to others in the drug business who are interested and make request. This report is called the *Lilly Digest*. It has a background of more than 4000 retail drug-store profit and loss statements. The one just off the press represents a detailed study of the operations of 605 drug stores and 366 prescription departments in those 605 drug stores for the year of 1940.

The neatly bound and printed *Lilly Digest* contains a wealth of factual figures and data. The trend of drug-store profits is shown since this Lilly Service started in 1932. Studies and tables prove the profitability of the professional department, monthly fluctuations in prescriptions filled by geographic sections, and by size of city, and prices received in stores of varying volume. There are tables on store expenses according to population of the town or city and also by volume of sales. For the first time a set of goal figures—something to shoot at—representing the costs and expenses achieved by stores with above average profits appears in the *Lilly Digest*. Nearly everyone recalls the familiar question "How am I doing?" Any druggist has the opportunity of measuring his performance with an accurate yardstick by spending an hour with this latest *Lilly Digest*, which is free for the asking. Address Eli Lilly and Company, Box 618, Indianapolis, Indiana.

PHARMACY
First Line of
NATIONAL
DEFENSE
IT IS YOUR PHARMACISTS JOB TO DISPENSE THE MEDICINES NECESSARY FOR YOUR RECOVERY FROM ILLNESS
YOUR DOCTOR and PHARMACIST COOPERATE TO KEEP THE NATIONAL HEALTH STANDARD AT A HIGH LEVEL
NATIONAL WEEK
NATIONAL WEEK
BOOKS On PHARMACY
Some of The WORKING TOOLS of our PROFESSION

Here are the two new Pharmacy Week window displays which will be available free of charge this year from wholesale druggists through the coöperation of the National Wholesale Druggists' Association. The material is lithographed on sheets of thin paper which can be mounted on cardboard.

In setting up the display, pharmacists may follow the suggested set-ups shown or revise them to include original ideas.

As in past years there will be a beautiful trophy and ten honorable mention awards, as well as state and sectional prizes, for the best professional windows during the week of October 19 to 25.

Request your free copy of the new display material from your wholesale druggist without delay as his supply may be limited. If he has not ordered a supply of displays from the National Wholesale Druggists' Association, urge him to do so.

NATIONAL PHARMACY WEEK 1941
YOUR PHARMACIST DEDICATES HIS LIFE TO A HIGHLY SCIENTIFIC AND NECESSARY HEALTH SERVICE DURING PEACE AND NATIONAL DEFENSE
NATIONAL WEEK
NATIONAL WEEK
STANDARD BOOKS in Professional Pharmacy
SOME OF THE WORKING TOOLS OF OUR PROFESSION

CHAIRMAN O'BRIEN ANNOUNCES

NATIONAL PHARMACY WEEK PLANS

SEVENTEENTH OBSERVANCE, TO BE HELD OCTOBER 19 TO 25, HAS NEW FEATURES

TWO new window display backgrounds, in a patriotic motif, will be available to pharmacists for use in their 1941 Pharmacy Week window displays, according to John E. O'Brien, Chairman of the National Pharmacy Week Committee. The new displays, shown on the opposite page, may be obtained free of charge from wholesale druggists through the coöperation of the National Wholesale Druggists' Association.

Plans announced by Chairman O'Brien for the 1941 observance of Pharmacy Week are even more extensive than the plans of past years. The presidents of state, city, county and district pharmaceutical associations are asked to appoint five special committees to take charge of windows, radio, banquets, speakers and advertising and the following suggested schedule of events for the week will be placed in their hands:

SUNDAY, OCTOBER 19

Each city and county pharmaceutical association is asked to run an advertisement in its local newspaper announcing the opening of National Pharmacy Week and outlining the program for its particular city. A suggested advertisement for this purpose is shown with this article.

National Pharmacy Week will be officially opened with a chain broadcast over the Mutual Broadcasting System. The speaker and time will be announced at a later date. Local Pharmacy Week Committees are asked to arrange additional broadcasts and the National Committee will supply suggested scripts on request.

MONDAY, OCTOBER 20

Local pharmaceutical associations are asked to arrange luncheons with their Chambers of Commerce. Suggested talks are available for pharmacists to use in speaking before such luncheons.

The National Committee suggests that city and county associations hold banquets on Monday evening. Such banquets should be addressed by a prominent speaker who will bring pharmacists up to date with developments in the field of pharmacy.

TUESDAY, OCTOBER 21

The National Committee is arranging a second radio network broadcast; time and speaker to be announced at a later date. Local committees are asked to arrange for local programs.

WEDNESDAY, OCTOBER 22

Pharmacists in every city and town in the country will appear before their noonday service clubs.

A third radio network program is planned; time and speakers to be announced.

THURSDAY, OCTOBER 23

Pharmacists are asked to speak before senior high-school students and before noonday service clubs.

FRIDAY, OCTOBER 24

Pharmacists are asked to speak before local Parent-Teachers Associations.

The local committees are asked to schedule evening radio programs.

SATURDAY, OCTOBER 25

The 1941 observance of National Pharmacy Week will be brought to a close with a final radio network program.

Chairman O'Brien has outlined the following duties for the five special committees to be appointed by the presidents of state, city and county associations:

WINDOW COMMITTEE

Coöperate with your college of pharmacy, your wholesaler and your drug manufacturer, and install an outstanding historical and professional window at a prominent corner in your city, as, for instance, in a window of one of your large

department stores. These stores will gladly donate the use of the window for one week.

Contact your wholesale druggist early and urge him to secure the backgrounds for professional windows from the National Wholesale Druggists' Association, 330 W. 42nd St., New York City. These backgrounds are on thin paper and can be mounted on cards, and they make a very interesting and informative base for a professional window.

Pictures of model windows are carried in most pharmaceutical journals, and by referring to these pictures a good window is easily and inexpensively installed.

A few pieces of simple apparatus can be purchased from the wholesaler for a few dollars and when filled with red-colored water, they attract the attention of the public. If the public stops, looks and reads the cards, a part of our message will be delivered.

Call every pharmacist in the community by telephone. Urge that he install a professional window during Pharmacy Week. Impress upon him how easily and inexpensively it can be done. Inform him that his wholesale druggist will furnish him, free of charge, a lithographed copy of the display material which, when mounted on cards, makes a very suitable background for a window.

Tell him to consult pictures of model windows appearing in drug journals for easy methods to prepare a suitable professional window.

Tell him that these backgrounds, together with a few simple pieces of pharmaceutical apparatus filled with red-colored water, make a nice window.

Tell him that the local committee will run an ad in the local paper calling the attention of the public to the professional windows in drug stores during "Pharmacy Week" and that if he does not have a window his customers may wonder why!

SPEAKER'S COMMITTEE

Arrange for six or more men to act as speakers.

The National Pharmacy Week Committee has several different papers which are interesting and instructive and which will be sent free upon request.

Contact the various "Noonday Luncheon Clubs" and ask permission to furnish a speaker at their meetings during National Pharmacy Week, October 19 to 25. Bear in mind that these clubs arrange their fall programs during August or early September. Assure them that your speaker will have an interesting and instructive message. Assure them that over three hundred such talks were given during "National Pharmacy Week of 1940" and that in every instance, the clubs were enthusiastic in their praise of the talks.

Arrange for a speaker for the luncheon at the Chamber of Commerce on Monday, October 20th, at noon.

Arrange for a speaker for the banquet at 6 P.M., on Monday evening, October 20th.

Contact the superintendents of high schools and arrange for speakers to address the senior classes.

Contact the various P. T. A. organizations and arrange for speakers to appear at their meetings.

Talks by pharmacists offer the best method of accomplishing the purposes for which National Pharmacy Week was created. Pharmacy has a worth-while message and, by acquainting the public with Pharmacy, the profession will receive the respect it rightfully deserves.

BANQUET COMMITTEE

Arrange luncheon for noon at Chamber of Commerce on Monday, October 20, 1941.

Write invitations to all druggists in your community to attend. Tell them to invite a few friends and customers. Tell them that many of their friends will be there. Then call every pharmacist by phone and urge his presence.

Invite a speaker to talk on a subject such as "National Pharmacy Week" or the "Progress of Pharmacy during the Past 75 Years."

Arrange for a banquet in the evening at one of the leading hotels. Issue a written invitation to every pharmacist in the community. Ask each pharmacist to invite at least one or two customers or friends.

Call every pharmacist and issue a personal invitation to attend. Again urge him to bring some friends.

Arrange for a speaker to talk on a subject such as "Newer Drugs in Pharmacy."

The National Committee is mindful that only a few hundred people will be reached through this noonday luncheon at the Chamber of Commerce and banquet in the evening, but we believe that National Pharmacy Week is a long-time

There is

A Scientist

In Your Community

How well do you know him?

He works long hours, day and night, alongside of your physician, your dentist, and all others concerned with the protection of community health. Probably you just know him as the corner druggist—but he is a trained scientist, too.

A REGISTERED PHARMACIST must be a high school graduate; graduate from a four-year college course in Pharmacy; have at least two years' practical experience; pass a rigid State Board Examination; renew his registration each year.

NATIONAL PHARMACY WEEK

will be observed

October 19 to 25

Be Sure To
TUNE IN
ON
Station PHG
Wednesday Evening
October 22
At 8:00 P. M.

Listen to the dramatisation of "Four Thousand Years of Pharmacy," sponsored by the Home City Retail Druggists' Association.

See the interesting, instructive Professional Displays in the windows at your Drug Store.

•

A Special Exhibit of (Drugs of the Bible) has been arranged in the windows of the First National Bank, A Street at 10th.

•

There will be a special Pharmacy Week Program, 2 p. m., Tuesday afternoon, October 21, at the High School Auditorium, sponsored by the Pharmacists of your city.

Suggested newspaper advertisement which the National Pharmacy Week Committee proposes that local committees insert in their community newspapers on Sunday, October 19. The copy can be adapted to the special features of any individual program.

program and that progress each year will in time accomplish the purpose for which the week was created.

The National Committee believes that the assembling of the local pharmacists during the week of observation will inspire all to coöperate more fully in the movement and do their part in placing pharmacy on the plane it rightfully deserves.

Our job is to make the public mindful of the professional importance of our profession. In this undertaking we need the support and coöperation of all.

RADIO COMMITTEE

Contact the radio stations in your city. Assure each radio station of the coöperation of the pharmacists for free time on its schedule.

Try to have an opening radio program either Sunday afternoon or Sunday night, October 19th.

Ask for a fifteen-minute period each evening and coöperate with the Speaker's Committee for men who will use that time.

Assure the radio management that our program is wholly educational. Coöperate with the Advertising Committee in your city to run a small ad in the radio section of the local paper each day, announcing the time and station of your educational program.

Where the station has a "Man on the Street" program, ask that the Master of Ceremonies interview a pharmacist during National Pharmacy Week.

The National Pharmacy Week Committee has many papers suitable for "Fifteen Minute Talks" over the radio and also "Questions and Answers for the 'Man on the Street' " program.

You may also obtain script suitable for spot announcements between programs.

ADVERTISING COMMITTEE

On Sunday, October 19, 1941, run an advertisement in your local paper on "National Pharmacy Week." The ad should be about four columns wide and eight inches high. Shown with this article is a suggested advertisement which you may change in any manner you desire.

On days you have a radio program, run a one-column four-inch ad in the radio section, calling attention to the educational radio program you will have that night. Ask that the editor write an editorial on pharmacy.

We also suggest that your committee write a short editorial and mail it to what is generally called the "Public Pulse" department of the paper.

Remember our job is to acquaint the public with pharmacy and we must take advantage of every legitimate avenue.

CODE OF ETHICS

If your copy of the Code of Ethics of the AMERICAN PHARMACEUTICAL ASSOCIATION, included in the May issue of this Journal, was damaged in mailing, you may secure a new copy, without charge, by addressing a postcard request to our printers: Mack Printing Company, 20th and Northampton Sts., Easton, Pa.

The supply is limited and requests must be made immediately. Only those requests received within fifteen days of the mailing of this issue will be honored.

IN THE NEWS

Dr. Glenn L. Jenkins, professor and head of the department of pharmaceutical chemistry at the University of Minnesota, has been named as the new Dean of the Purdue University School of Pharmacy, effective with the opening of the regular academic year next fall. Dr. Jenkins will take over the duties that have been handled by Dr. Carl J. Klemme, as acting executive, since the death of the late Dean C. B. Jordan last April.

Dr. Jenkins has published approximately fifty papers in educational and scientific journals and is the co-author of a textbook, "Quantitative Pharmaceutical Chemistry," which is now in its third edition. Another book, "The Chemistry of Organic Medicinal Products," is now on the press. As a member of the Revision Committee of the "Pharmacopœia of the United States," he is chairman of the sub-committee on reagent chemicals, while as a member of the Revision Committee of the "National Formulary" he is chairman of the committee on chemicals.

A native of Sparta, Wis., Dr. Jenkins launched his pharmacy career as an apprentice in Madison, Wis. Later, he entered the University of Wisconsin where he earned the degrees of Ph.G. in 1921 and B.S. in 1922. Returning to Wisconsin as a Hollister research fellow, he received the M.S. degree in 1923 when he was appointed an assistant instructor at the institution. Continuing his graduate studies, he received the Ph.D. degree in 1926 with a major in pharmaceutical chemistry and a minor in pharmacology, which led to his appointment as instructor in pharmacy.

He was called to the University of Maryland as Professor and Head of the Department of Pharmaceutical Chemistry in 1927, resigning in 1936 to accept the same position at the University of Minnesota, where he has been since that time.

Dr. Jenkins is a member of Theta Chi, social fraternity; Kappa Psi, professional pharmacy; Rho Chi, pharmacy honorary, which he served as president from 1930 to 1934; Sigma Xi, honorary research, and Gamma Alpha. He is also an honorary member of Phi Delta Chi, professional pharmacy, and Phi Lambda Upsilon, professional chemical.

Dr. Jenkins was married in June of 1926 to Serena E. Forberg, of Hubbard Woods, Ill., a graduate of the University of Wisconsin and a member of the Chi Omega sorority. They have four children, Serena Elizabeth, 13; Thomas Nelson, 8; Glenn Llewellyn, Jr., 5, and Carol Ruth, 5 months.

DR. GLENN L. JENKINS

Dr. Carl J. Klemme, professor of pharmaceutical chemistry at Purdue University who has been serving as acting executive of the School of Pharmacy since the death of the late C. B. Jordan, has resigned his position in order to accept an appointment as administrator of the Experimental Research Laboratories of Burroughs, Wellcome & Co., Inc., Tuckahoe, N. Y., one of the largest pharmaceutical manufacturing concerns in the world.

In his new position, Dr. Klemme will have charge of the laboratory administration as well as the planning and directing of the program of research at the New York laboratories of Burroughs, Wellcome & Co., which has a virtually world-wide organization. The concern maintains plants and laboratories in London, New York, Montreal, Cape Town, Bombay, Shanghai, and Buenos Aires.

OBITUARY

DR. EDWARD KREMERS

On July 9, 1941, Dr. Edward Kremers, Director Emeritus of the School of Pharmacy of the University of Wisconsin, died of a heart attack. He was 76 years of age.

Born at Milwaukee, Wisconsin, on February 23, 1865, as one of the sons of Gerhard and Elise Kremers, nee Kamper, Edward Kremers served his pharmaceutical apprenticeship with that excellent German pharmacist, Louis Lotz, in Milwaukee. This man, who had been a student with Liebig at Munich, imbued his apprentice with an idea which Dr. Kremers never abandoned and fought for all his life: the idea that pharmacy has to be a profession executed by scientifically educated people in order to really fulfil the tasks assigned to it within the service of public welfare.

In 1884 Dr. Kremers entered the Philadelphia College of Pharmacy, but for family reasons continued his study at the University of his home state, at Madison, Wisconsin. Here he earned his Ph.G. degree in 1886 and his B.S. in 1888. In the fall of 1888 he went abroad to Bonn and studied under Wallach and attended the lectures of Kekule, of benzene ring fame, on structural chemistry. These two branches of chemistry, *i. e.*, phytochemistry and structural chemistry, remained the two main fields of Dr. Kremers' scientific endeavor throughout his life and it was in them that he gained worldwide recognition. When Wallach accepted a call to Goettingen, Dr. Kremers was one of the twelve students who migrated with him to his new place of work. After two years of work with Wallach, in 1890, Dr. Kremers was awarded the Ph.D. degree. His dissertation dealt with "The Isomerisms within the Terpene Group" and laid the ground for many later investigations.

Returning to Madison, Dr. Kremers was Instructor in Pharmacy from 1890–1892, Professor of Pharmaceutical Chemistry and Director of the Course in Pharmacy at the University of Wisconsin from 1892–1935, succeeding Dr. Powers.

Being a pharmacist by choice and by destiny Dr. Kremers worked to give pharmacy a professional standing on the same educational level as the other academic callings and to give the pharmacist and the service rendered by him the advantage of special knowledge as well as of a broad general horizon. In 1902, he introduced the first four-year course in pharmacy in America. He was the first to establish graduate work for students of pharmacy leading to the Ph.D. with pharmacy as a major. In 1913 he initiated the first "Pharmaceutical Experiment Station" in the United States to demonstrate the possibilities and usefulness of academic pharmaceutical research.

From 1896 to 1909 he edited, first with Frederick Hoffmann and from 1901 alone, the *Pharmaceutical Review*. In 1898 he created another journal, the *Pharmaceutical Archives*, restricted exclusively to the publication of scientific originals. This journal was discontinued in 1903 and revived in 1936. He was one of the authors of the "National Standard Dispensatory" and the comprehensive work of "The Volatile Oils," a product of the coöperation of Gildemeister-Hoffmann-Kremers has been published in two editions (1900 and 1913). The pharmaceutico-historical collections of Kremers have formed the main basis for the Kremers-Urdang "History of Pharmacy" published in 1940.

He served the United States Pharmacopœia Committee as Chairman of the Committee on Volatile Oils and related subjects from 1900 to 1910 and the AMERICAN PHARMACEUTICAL ASSOCIATION as Chairman of the Scientific Section and as Historian. He was elected Honorary President of THE AMERICAN PHARMACEUTICAL ASSOCIATION in 1933. He was President of the American Conference of Pharmaceutical Faculties in 1902, and of the Wisconsin Pharmaceutical Association in 1930. After his resignation as Director of the School of Pharmacy at Wisconsin he became a member of the Wisconsin State Board of Pharmacy and the National Association of Boards of Pharmacy made him a Honorary President for 1939–1940. He was furthermore an honorary member of the Société d' Histoire de la Pharmacie, of the Gesellschaft fuer Geschichte der Pharmazie (corresponding member) and of the Deutsche Pharmazeutische Gesellschaft. He was awarded the Ebert Prize twice, in 1887 and in 1900, and received the degree of Sc.D. *honoris causa* from the University of Michigan in 1913 and the Remington Honor Medal in 1930.

On July 6, 1892, Edward Kremers married Miss Laura Haase. Of their children three, two daughters and one son, are living.

Education **IN PHARMACY** Offers opportunities for interesting careers. B.Sc. degree courses in Pharmacy, and also in Chemistry, Biology, and Bacteriology offered. Properly qualified applicants may pursue graduate study leading to M.Sc. and D.Sc. degrees in Pharmacy, Bacteriology, and Biology. Entering classes in Pharmacy limited to 100. Complete courses; Modern equipment; Many undergraduate collegiate activities. Write for catalogue and illustrated pictorial.

Philadelphia **COLLEGE OF PHARMACY AND SCIENCE**
Oldest institution of its Kind in the Americas
43rd Street, Kingsessing and Woodland Avenues, Philadelphia, Pennsylvania

AMERICAN PHARMACEUTICAL ASSOCIATION

OFFICIAL ROSTER FOR 1940–1941

(Committees will be corrected as appointments are made by the President, Chairman of the Council, Chairman of the House of Delegates and Chairmen of the Sections.)

OFFICERS OF THE ASSOCIATION

President, Charles H. Evans, Warrenton, Ga.
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First Vice-President, H. A. K. Whitney, Ann Arbor, Mich.
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Secretary, E. F. Kelly, 2215 Constitution Ave., Washington, D. C.
Treasurer, C. W. Holton, Box 81, Essex Fells, N. J.
Editor of the Journal: Emeritus, E. G. Eberle; *Scientific Edition*, A. G. DuMez, 32 S. Greene St., Baltimore, Md.; *Practical Pharmacy Edition*, Robert W. Rodman, 2215 Constitution Ave., Washington, D. C.

THE COUNCIL

Elected Members.—Roy B. Cook, 1559 Lee St., Charleston, W. Va. (1941); Glenn L. Jenkins, University of Minnesota, Minneapolis, Minn. (1941); R. L. Swain, 330 W. 42nd St., New York City (1941); H. C. Christensen, 130 N. Wells St., Chicago, Ill. (1942); R. P. Fischelis, 28 W. State St., Trenton, N. J. (1942); Ernest Little, 1 Lincoln Ave., Newark, N. J. (1942); H. A. B. Dunning, Charles & Chase Sts., Baltimore, Md. (1943); C. B. Jordan, Purdue University, La Fayette, Ind. (1943); F. J. Cermak, 3501 E. 93rd St., Cleveland, O. (1943).

Ex-Officio Members.—Charles H. Evans, A. G. DuMez, H. A. K. Whitney, Henry H. Gregg, Jr., E. F. Kelly, C. W. Holton, Hugo Schaefer.

OFFICERS OF THE COUNCIL

Chairman, Glenn L. Jenkins; *Vice-Chairman*, R. P. Fischelis; *Secretary*, E. F. Kelly.

COMMITTEES OF THE COUNCIL

Committee on Finance.—*Chairman*, R. L. Swain; H. A. B. Dunning; C. W. Holton.

Committee on Property and Funds.—*Chairman*, C. H. Evans; C. W. Holton; Glenn L. Jenkins; S. L. Hilton; R. L. Swain and E. F. Kelly.

Committee on Publications.—*Chairman*, A. G. DuMez; R. P. Fischelis; Roy B. Cook; E. F. Kelly; C. W. Holton; C. B. Jordan.

Committee on Standard Program.—C. H. Evans; H. H. Schaefer; E. F. Kelly; Ernest Little; H. C. Christensen.

Committee on N. F. and R. B. Policies.—Glenn L. Jenkins; Ernest Little; E. F. Kelley. *Ex-Officio*, J. L. Powers; E. F. Cook; J. Leon Lascoff.

Committee to Develop Advertising for the R. B. and N. F.—*Chairman*, J. Leon Lascoff; H. A. B. Dunning and H. A. K. Whitney.

Representatives on The American Council on Pharmaceutical Education.—R. P. Fischelis (1946); E. F. Kelly (1944); D. F. Jones (1942). These members serve with an equal number from the A. A. C. P. and the N. A. B. P.

Committee on A. Ph. A. Laboratory.—*Chairman*, George D. Beal (1943); F. O. Taylor (1944); Carson P. Frailey (1942); C. B. Jordan (1941); J. L. Powers (1944). *Ex-Officio Members:* E. Fullerton Cook; J. L. Powers; J. Leon Lascoff.

Committee on Tenure of Office and Retirement Provisions.—*Chairman*, C. W. Holton, R. L. Swain, R. P. Fischelis.

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Place of Meeting.—*Chairman*, W. F. Rudd, Richmond, Va.; R. A. Lyman, Lincoln. Nebr.; P. H. Costello, Cooperstown, S. Dak.; R. C. Wilson, Athens, Ga.; R. E. Terry, Chicago, Ill.

State Food and Drug Legislation.—*Chairman*, R. P. Fischelis, Trenton, N. J.; R. L. Swain, New York City; C. Leonard O'Connell, Pittsburgh, Pa.; A. L. I. Winne, Richmond, Va.

Continuation Study for Pharmacists.—*Chairman*, S. H. Dretzka, Milwaukee, Wis.; John O'Brien, Omaha, Nebr.; C. Leonard O'Connell, Pittsburgh, Pa.; L. M. Kantner, Baltimore, Md.; C. B. Jordan, W. La Fayette, Ind.

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Committee on Ebert Prize.—*Chairman*, M. R. Thompson, New York City; B. V. Christensen, Columbus, O.; F. F. Johnson, Pittsburgh, Pa.; M. J. Andrews, Baltimore, Md.; L. C. Miller, Washington, D. C.

Committee on Kilmer Prize.—*Chairman*, H. W. Youngken, Boston, Mass.; E. H. Wirth, Chicago, Ill.; E. J. Ireland, New Orleans, La.

Board of Review of Papers.—*Chairman*, F. E. Bibbins, Indianapolis, Ind. (1941); H. M. Burlage, Chapel Hill, N. Car. (1941); R. E. Terry, Chicago, Ill. (1942); Carl J. Klemme, La Fayette, Ind. (1942); L. W. Rowe, Detroit, Mich. (1943); H. W. Youngken, Boston, Mass. (1943); C. O. Lee, La Fayette, Ind. (1944); L. W. Rising, Seattle, Wash. (1944); E. V. Lynn, Boston, Mass. (1945); J. L. Powers, Washington, D. C. (1945).

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